

NOVEMBER 1961

# Material Handling Engineering

Established in 1945 as FLOW Magazine



## GUIDE TO WAREHOUSING

**How many warehouses, and where?**

**What warehousing system should you use?**

**New excitement—the automatic warehouse**

**Organizing for efficient warehouse control**

**Paperwork aids for warehouse control**

STEVENS RICE  
UNIVERSITY MICROFILMS  
313 NORTH FIRST ST  
ANN ARBOR MICH

THE MAGAZINE OF MATERIAL FLOW MANAGEMENT

**Versatility at the District Warehouse .....78**

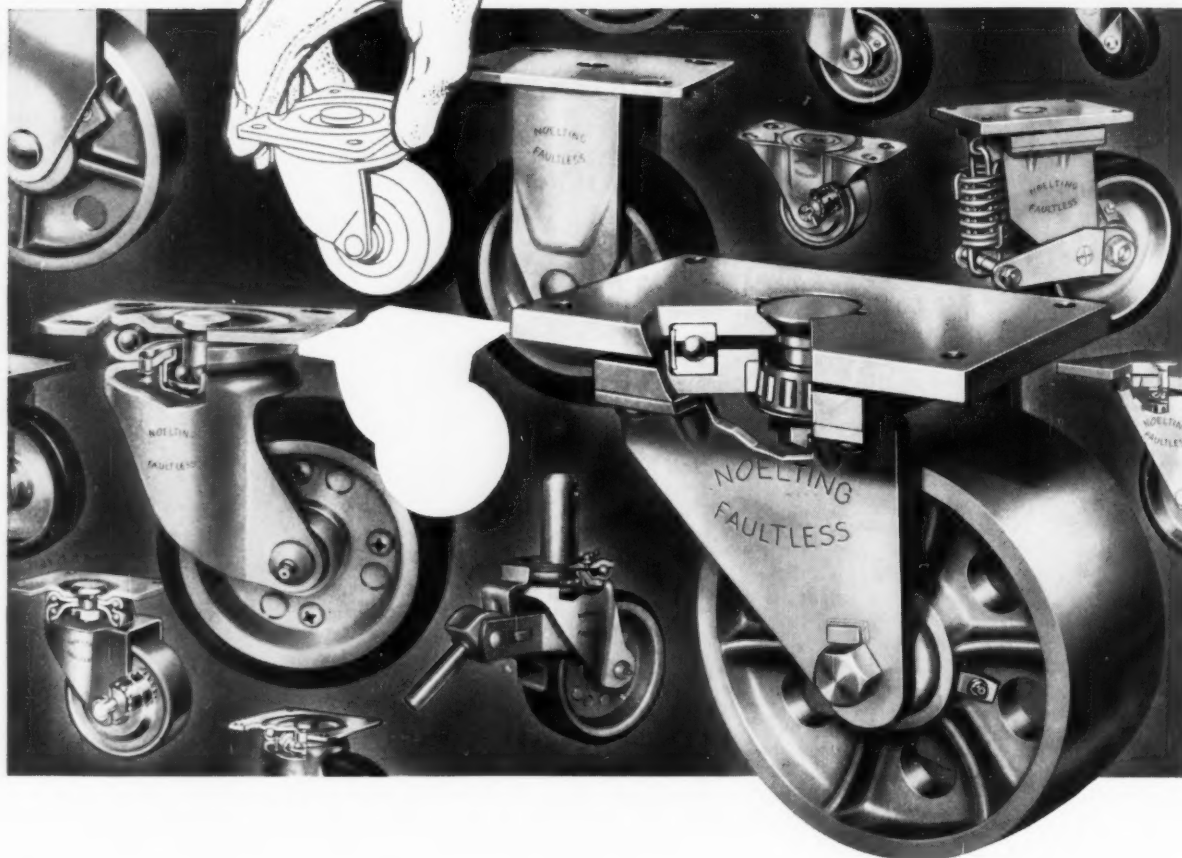
**Efficient Warehousing at IBM .....81**

**Circulating Carts Remember Their Stops .....86**

the ONE

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**Faultless Caster Corporation** EVANSVILLE 7, INDIANA

Branch Offices in principal cities of the U.S.; see the Yellow Pages of the telephone book under "Casters." Canada: Stratford, Ontario  
Circle 48 on Reader Service Card







GOOD YEAR

# RUGGED!

## New NEOTHANE Tire can tote 2 to 4 times the load 4 times longer

Stack the NEOTHANE up against any conventional tires — under the worst conditions this remarkable Goodyear industrial “solid” will outlast the others as much as 4 times, even when lugging 2 to 4 times the load.

**Secret of this unmatched toughness** is a new Goodyear polyurethane development that has amazing durability combined with resiliency. Photo above taken through heavy plate glass shows that NEOTHANE tires roll over metal chips, splinters, even broken glass with virtually no gouging or cutting. They won't swell or turn

spongy when driven through water, oil, grease, solvents or acids.

**Tough as they are,** however, NEOTHANE tires “give” enough to stand up under rough going. And they're harmless to polished floors. If your service is really tough and if your tire dollars aren't buying enough mileage, why not try NEOTHANE? Full details are on tap at your Goodyear Dealer's. Or write Goodyear, Industrial Tire Sales, Akron 16, Ohio. Remember—lots of good things come from Goodyear.

Buy and Specify NEOTHANE Industrial Tires by

# GOOD YEAR



Neothane—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND  
Circle 54 on Reader Service Card

November 1961

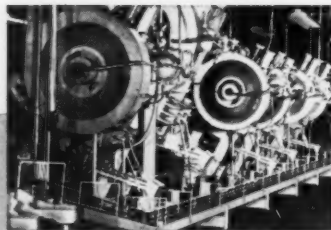
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# Here's a Savings Program for **INDUSTRY**

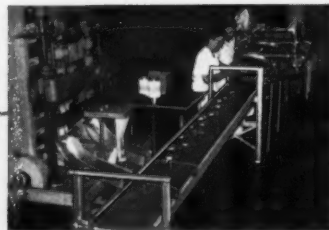


There's no limit to savings when you've got a Wendway Conveyor system in your plant. For, if you move *anything*—product, carton, package, part bag or assembly . . . from machine to machine . . . one room to another, Wendway is the one practical, economical method.

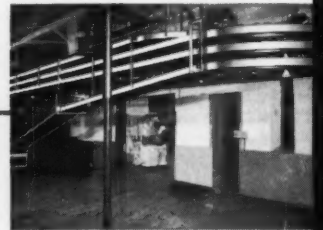
Even better . . . a Wendway system will quickly pay for itself in actual, provable time, labor and equipment savings. So, if you want increased production efficiency and handling savings the easy way...remember Wendway!



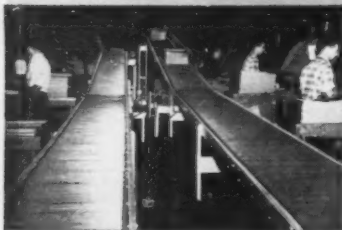
Wendway easily adapts and installs with existing equipment to speed processing and continuous flow—eliminates handling, storage and equipment.



"Stub" Wendway, a short single tier unit with regular link-rod belting, conveys packages from bag loaders through a series of stapling and sealing operations. Installations may be permanent or portable to suit the need.



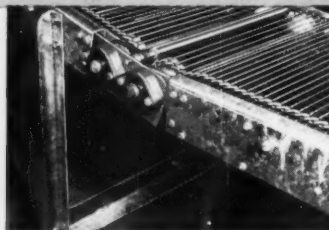
Ceiling-mounted Wendway saves floor space and proves ideal for cooling or drying operations. "Spiral" conveyor shown travels products for predetermined period before returning them to floor level for processing.



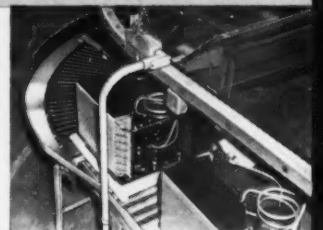
Large glass plant installed this "production line" Wendway system to convey air filters from assembly and stapling machines to elevated shipping and boxing stations.



A typical package conveyor installation, this three-tier Wendway system extends the full length of the loading dock. System is fed by self-powered "roll-away" switch section (center-left).



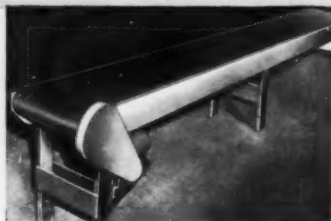
Powered transfer rollers between regular Wendway sections eliminate "dips" or "hang-ups" to conveyed products, cartons, etc. Regular link-rod Wendway belting is available in regular or stainless steel; also spring steel.



For heavy duty or difficult application, Wendway slat type conveyors are recommended. Conveyor in this installation is carrying room air-conditioners smoothly and safely.



Close-up of the powered slat curve conveyor shows how individual slats smoothly negotiate curve without variation in open spacing. Heavy duty slat type Wendway is available in powered straight sections, 90° or 180° curves.



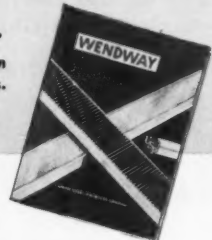
Wendway is also available with solid belting such as Canvas, Neoprene or rubber belting to meet every need. Belting widths mix or match with regular or slat type units.

## WENDWAY

**INDUSTRY'S MOST VERSATILE  
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*Write Today...*

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Circle 131 on Reader Service Card

reader's guide to

NOVEMBER 1961

# Material Handling Engineering

volume 16 number 11

Established in 1945 as FLOW Magazine

## HOW MANY WAREHOUSES AND WHERE? ..... 59

Answers to these two questions which are troubling industry today.

## WHAT WAREHOUSE SYSTEM SHOULD YOU USE? ..... 62

Three experts explain the factors they look for when designing a system.

## NEW EXCITEMENT—THE AUTOMATIC WAREHOUSE ..... 65

The most comprehensive report ever published on this vital subject.

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MHE's editors take you behind the scenes with the automatic warehouse planners.

## ORGANIZING FOR EFFICIENT WAREHOUSE CONTROL ..... 73

Divorce warehousing from production and sales.

## JUST ENOUGH PAPERWORK FOR GOOD WAREHOUSE CONTROL ..... 75

Keep your paperwork in line and good handling will follow.

## VERSATILE EQUIPMENT AT THE DISTRICT WAREHOUSE ..... 78

You have to use all your warehouse space when inventories fluctuate.

## STORE ACCURATELY WITH CONVEYORS, STANDARD BOXES, PUNCH CARDS

These handling tools are the backbone of IBM's warehousing plans.

## HOW THEY'RE WAREHOUSING ..... 84

Case histories of good warehousing practice.

## CIRCULATING CARTS REMEMBER THEIR STOPS ..... 86

Towline handling gets more automatic in new installations.



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## PRODUCTION UP—REJECTS DOWN 25%



Chainveyor's power and free overhead conveyor system, installed at Jaybee Mfg. Corp. in Los Angeles, levels work flow and tightens quality control.

Stamped parts are racked on special hangers and then loaded on free Chainveyor lines that move towards a single powered track. Loaded hangers from the free tracks are automatically switched into the power line as needed, and move through all finishing processes to inspection and shipping departments. Finishing procedures are regulated by one operator at a master control station along the conveyor path.

Power and free combinations of this type automatically adjust to work load requirements and increase efficiency from personnel and equipment.



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MATERIAL HANDLING ENGINEERING

**A  
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**BIG JOE  
1962**

**AN ENTIRELY NEW CONCEPT OF IN-BETWEEN-HANDLING**

to do the job easier, better and more economically! Sounds like the usual advertising adjectives, but if you remember the introduction of our still-unequalled "Challenger" and the price-shattering "299" during the last 10 years, you know Big Joe delivers more than they promise. Big Joe 1962 will again prove our products to be the finest of their kind ever produced. See it soon . . . Big Joe 1962!

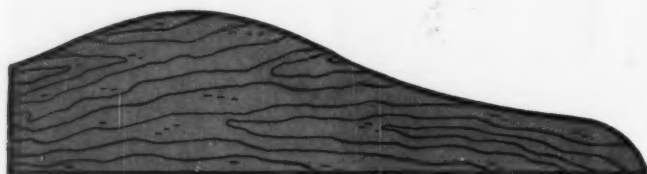
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Power Drive

Wisconsin Dells, Wisconsin



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EQUIPTO ROBE



STOCK CARTS



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## CALENDAR OF EVENTS

### November 4-7

Eighth Annual Building Materials  
Exposition  
McCormick Place  
Chicago

### November 7-10

Packaging Machinery Manufacturers  
Institute Show  
Cobo Hall  
Detroit

### February 12-16, 1962

Short Course in Automation,  
Computers, and Instrumentation  
Georgia Tech Campus  
Atlanta

### February 6-8, 1962

Early Spring Meeting of The Material  
Handling Institute, Inc.; The Industrial  
Truck Association; Monorail  
Manufacturers Assoc.  
Hilton Inn  
Atlanta

### March 5-9, 1962

Fifth Annual Midwest Work Course  
on Material Handling Analysis  
The University of Kansas  
Kansas City, Kansas

### May 8-18, 1962

Mechanical Handling Exhibition  
Earls Court  
London

### May 9-11, 1962

Western Material Handling &  
Packaging Show  
Great Western Exhibit Center  
Los Angeles

### June 19-21, 1962

Material Handling Institute Great  
Lakes Show  
Cobo Hall  
Detroit

### July 17-19, 1962

Western Packaging & Material  
Handling Exposition  
Brooks Hall  
San Francisco

### November 14-16, 1962

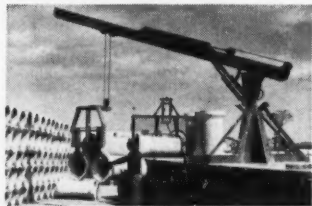
The Material Handling Institute  
Southwest Show  
Dallas

MATERIAL HANDLING ENGINEERING

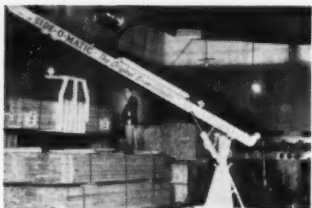


again **SIDE-O-MATIC**  
moves forward in  
**FLEXIBILITY**

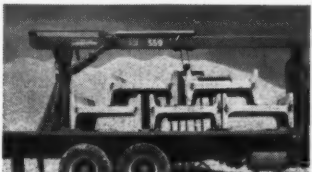
**you're looking at  
NEW ECONOMY  
in materials handling**



Large-diameter concrete pipe easily and gently unloaded with one-man operation.



Strapped lumber quickly and accurately stacked high or unloaded with Hi-Lo Side-O-Matic.



Concrete beams are readily unloaded with versatile Side-O-Matic SP Unit.



SIDE-O-MATIC Self-Powered, Hi-Lo Packaged Unit puts shingles up to roof level.

**new self-powered PACKAGED UNITS offered  
... for any material ... any job!**

Once again, SIDE-O-MATIC, the original boom unloader, offers new versatile *packaged models* to provide still broader flexibility in materials handling.

All units are completely self-contained, self-powered, and incorporate Side-O-Matic's rugged design and exclusive feature—continuous turning in either direction. They are all ready to be bolted to your truck or trailer and are available in three different models . . . Hi-Lo Boom, Traveling Boom, and Fixed Boom for lighter weight trucks . . . to match your specific needs.

Photos at left give some idea of the flexibility of Side-O-Matic's modern Self-Powered Packaged Units. From pipe to lumber to cubes of blocks or bricks or palletized materials . . . for high lifting or long reaching . . . find out about the proved economy and efficiency Side-O-Matic Packaged Units now offered. Write or call for full details NOW!

**SIDE-O-MATIC**

THE ORIGINAL BOOM UNLOADER

**SIDE-O-MATIC UNLOADER CORP.**

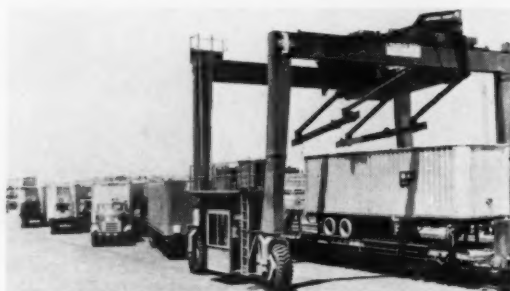
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# NEWS ROUNDUP

## First piggyback handling yard

THE BOSTON AND MAINE RAILROAD'S BOSTON YARD was designed exclusively for piggyback handling. It's rampless, using instead two Pace-



co TransTainers. These units, built by the Pacific Coast Engineering Co., straddle a flat car, pick up a trailer, rotate it, and set it down behind its cab. Parking trailers at an angle to the flatcar makes for faster movement. The TransTainers, hydraulically-operated, have a 30-ton capacity.

## Six spurs to productivity

DR. JOSEPH HARRINGTON JR., Arthur D. Little Co., listed these spurs to productivity at a Cleveland meeting of the Manufacturing Engineering Council:

- Increased volume; more aggressive selling.
- Make more units/hour, realize we're in a cut-throat worldwide competition.
- Don't squawk about cheap foreign labor; use it.
- Get better and more machinery to increase productivity; a tax cut on equipment would provide more capital.
- Stop breaking up corporate units with enough size to carry out basic research.
- Make a better product with a better method (where you and I come in).

## New crane leasing plan

ABELL-HOWE Co. announces a leasing plan for its overhead traveling cranes and related material handling equipment. An oldtime leas-

ing firm will handle complete financing. Arrangements will provide use of Abell-Howe equipment for a predetermined time at a monthly rental rate. For more information, write the firm at 7747 Van Buren St., Forest Park, Ill.

## Machine tests truck wheels

DISOGRIN INDUSTRIES developed a machine test for truck wheels. It does in a day or two what Disogrin needed months to accomplish



with field tests. The test wheels run at 5 mph, at loads up to 6,000 lb., moving from side to side against a revolving out-of-round concrete drum. Pressure is increased until failure. Disogrin measures the energy used to compress the wheel against the drum.

## A pyramid of rubber



JUST FOR FUN, General Tire & Rubber Co. piled up 19 of the more than 1,000 different sizes of tires handled at its Akron warehouse. The base is a 33.5 x 39 off-the-road tire. On top is a small industrial truck tire. For a discussion of handling at this warehouse see "Just Enough Paperwork for Good Warehouse Control" on page 75.

Continued on page 10



# NEW *Go-Devil*<sup>®</sup> does more jobs reduces your costs

This one mobile crane can do more jobs in and around your plant or future expansion than those handled now by several different units . . . saving you the cost of individual units for special applications.

How many rigs do you now own which have a 360° continuous rotating boom telescoping out to 16' . . . over and into normally inaccessible areas to pick up castings, motors, metals, barrels, boxes? How many rigs do you use which have a carrydeck of 50 sq. ft. with a capacity of 8,000 lbs. . . . permitting you to stack and carry several objects? How many rigs do

you have which are *compact* enough to perform indoors as well as *powerful* enough to do outdoor yard work? How many rigs do you now have "half-busy" which one fulltime Go-Devil does with its pallet and coil lifters, slings, magnets and grabs?

Isn't all-around materials handling versatility, precision and safety important to your production picture? Then the answer is the Drott 6,000 lb. lift Go-Devil. Fill out the coupon below now. Ask about the 20 RM2 Go-Devil, too!

**IT REACHES**  
24' up . . .  
16' out



**IT LIFTS**  
6000 lbs.  
with safety



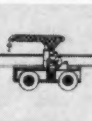
**IT SWINGS**  
360° continu-  
ous rotation



**IT TRAVELS**  
up to  
19 MPH



**IT HAULS**  
on 50 sq. ft.  
of deck area



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Materials Handling Division

3126 S. 27th Street • Milwaukee 15, Wisconsin

I'd like more information on the 60 RM 2 Go-Devil.  
Please rush bulletin MH-601.

Name.....

Title.....

Company Name.....

Company Address.....

City..... Zone..... State.....

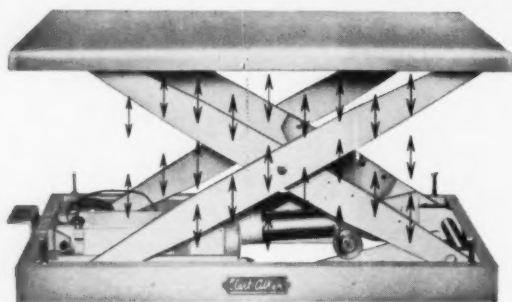
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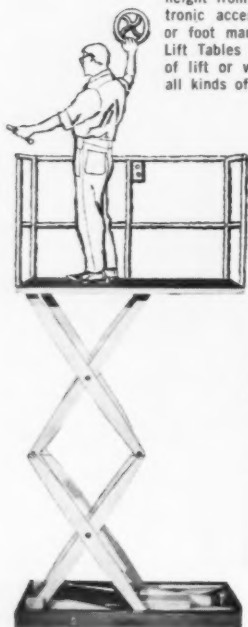
# Clark-Aiken LIFT TABLES

UP TO 6000 LB. CAPACITY  
FOR INTEGRATED SYSTEMS OR PORTABLE USE



## PUT THEM TO WORK — TO POSITION YOUR WORK

Fast and sure control for any positioning within a 48" height from floor level on standard tables—with electronic accessories for automatic positioning or hand or foot manual control. Clark-Aiken electric hydraulic Lift Tables provide the easy answer to a wide range of lift or work positioning problems. Now in use for all kinds of jobs in all kinds of plants.



## SO MANY USES — SO ADAPTABLE

Note the special double scissors unit illustrated—functions as an elevator and for adjusting large machinery or making set-ups, repairs, painting, etc., raises loads above 48" and up to 72".

Lift tables can be wheel-mounted for portable use, too. For fixed operations they can be flush-floor mounted—a special toe guard provides safety. Special cradle tops can be furnished for cylindrical objects and other curved-surface materials.



### SEND FOR INFORMATIVE BULLETIN

Complete descriptive literature on the standard line of Clark-Aiken Lift Tables is yours for the asking—write, wire or phone today for prompt response.

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## NEWS ROUNDUP

### Supports frozen foods handling codes

THE REFRIGERATED DIVISION, Ringsby Truck Lines Inc., strongly supports codes for handling consumer packaged frozen foods. There are two codes now under consideration, one by the Association of Food and Drug Officials of the United States, the other by the Frozen Food All Industry Coordinating Committee. Ringsby, while meeting standards of both proposals, favors the second because it's less rigid, provides a five-year period for gradually tightening the standards. Nevertheless, Ringsby feels that high standards are vital in frozen food handling.

### 21st Century monorail travel

EXIDE INDUSTRIAL DIVISION of The Electric Storage Battery Co. showed this model monorail system at the National Chemical Exposi-



tion, Chicago. The model is powered by a fuel cell. The exhibit was designed and built by (l to r) Harry Casterlin, advertising department supervisor; H. C. Riggs, engineering department staff assistant, and Arthur J. Hedges, supervisor of publicity.

### Better control with colored boxes

ALLINSON AND Co., shoe manufacturers from England, eliminated a bottleneck by placing parts for shoe uppers in boxes colored according to the day on which they start into production. This enables a box of work to be traced easily and time measurements made, according to Target, British productivity publication. The firm also altered layout, streamlined work flow, installed rows of unit benches with more room. Results: output up 10 percent and costs down nearly 12 percent.

Continued on page 12

MATERIAL HANDLING ENGINEERING



## TOWMOTOR'S ON THE MOVE

—expanding the benefits of Towmotor mass-handling through Towmotor-supervised rental plans. Enabling any company to rent new equipment—for a few weeks or as long as needed. Including complete maintenance service when desired. Offering budgeted payments that promise immediate profit. Keep moving by renting Towmotor fork lift trucks—made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.

**TOWMOTOR -GERLINGER**  
THE ONE-MAN-GANG®

\*Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation  
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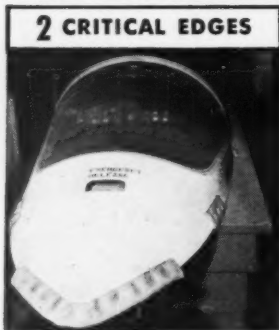
Versatile Leasing and Time Payment Plans are also available which make it possible to make immediate use of Towmotor fork lift trucks (above) and Gerlinger carriers (below) . . . pay small budgeted amounts monthly . . . free your working capital for other uses . . . and include Towmotor-supervised maintenance if desired. Leasing with Purchase Option can also be arranged.



# New Use-Reports Show HOW EDG-PAK PREVENTS DAMAGE, SAVES MONEY!



1 NESTED  
STAMPINGS



2 CRITICAL EDGES



3 STEEL STRAPPING

- 1 Nested Automobile Stampings.** Sharp flanges don't shear or punch through Edg-Pak's "Strength of Steel" wire inner construction. Adjoining surfaces are fully protected. Edg-Pak doesn't fall off . . . Spring-Grip holds tight—speeds up handling—reduces manpower needs!
- 2 Critical Aircraft Edges.** Edg-Pak slips over edges fast. Spring-Grip holds securely. Cushioned 3-way "Strength of Steel" construction improves top, bottom and side protection of critical edge. Reduces damage, speeds handling—Edg-Pak's "Strength of Steel" saves labor and materials!
- 3 Steel Strapping.** Prevents sharp edges from cutting through to damage corners or printed surfaces. "Velvet Glove" cushioning prevents marring or scratching. Spring-Grip speeds up both "spot" and length protection applications.

## WRITE TODAY!

For New EDG-PAK Card with  
Sample Materials,  
Specifications,  
Price List



**FLEX-O-LATORS, INC.,**  
Carthage, Missouri MHE-5

**YES!** I want new EDG-PAK Samples,  
Specifications and Price List!

NAME \_\_\_\_\_  
FIRM \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

Circle 50 on Reader Service Card

## NEWS ROUNDUP

### Canadian fork lift Rodeo

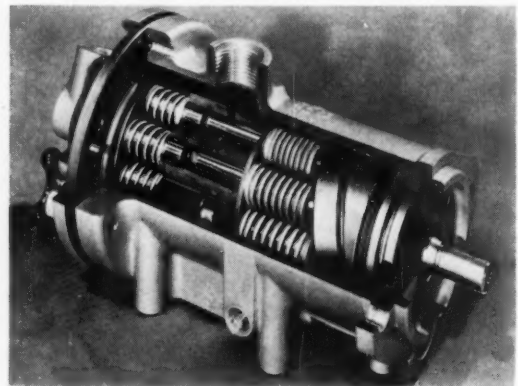
OSHAWA WHOLESALE LTD., IGA supply depot for 130 grocers in Southern Ontario, sponsored its first Lift Truck Rodeo at the firm's parking



lot. First place went to Frank Vihant, second, to Fred Lane. Here, Joe Crossman of the company presents an award in Vihant while Mrs. Vihant and baby bask in daddy's glory. Judges: Ron Dallas, American Material Handling Society, and Bill Amos, Lifto Ltd.

### A new hydraulic pump

WEATHERHEAD Co. announced a highly efficient, variable displacement hydraulic pump, proved over two years of laboratory and field testing. For lift trucks, the firm recommends a pump in the 40 hp. range. It can provide motive power as well as power for the mast and attachments. The pump is an axial piston type with seven cylinders, each with a piston, con-



necting rod, and low-mass check valve—phased into a common outlet port. Only rotating components are the drive shaft and cam. Advantages: high speed, high pressure capability, balance of forces, simplicity, versatile controls, minimum size and weight. Maximum length: 9 7/8 inches; maximum diameters: 5 1/4 inches.

Continued on page 14



# Cat Wheel Loaders prove themselves on the job

**WHEREVER THEY WORK—WHATEVER THEY DO...CAT WHEEL LOADERS  
ARE GETTING THE WORK DONE QUICKLY, ECONOMICALLY, SAFELY**



**Broad River Brick Co., Gaffney, S. C.**—Cat 944 Wheel Loader scoops up a full bucket of brick clay for hopper charging. "Our 944 is fast, maneuverable and easy to operate," reports the assistant plant manager, who measures machine features in terms of daily performance...and is well satisfied.



**Great Western Sugar Co., Scottsbluff, Nebraska**, uses a Cat 966 to truck-load stockpiled beets for processing at the local plant. With a special 6-yd. bucket, the big Caterpillar 966 loads 1500 tons of beets daily from various stockpiles over the Scottsbluff Valley.

- **Three Sizes:** 922—80 flywheel HP (105 HP max.), choice of gasoline or Cat Diesel Engine; 944—105 flywheel HP (135 HP max.), choice of gasoline or Cat Diesel Engine; 966—140 flywheel HP (205 HP max.), Cat Diesel Power.

- **Bucket Sizes** from 1¼-2¾ yd. with special buckets, including side dump, and forks always available from the Cat Dealer.

- **Power Shift Transmission**—fast response, smooth on-the-go shifting at the touch of a finger.

- **Automatic Bucket Positioners**—speed cycles. One touch on lift lever raises full bucket to dumping height and *holds* it. Another touch on tilt lever automatically positions bucket

at the correct digging angle. Operator is free to maneuver loader.

- **Easy On-and-Off Design**—operator mounts machine via three steps. He sits *behind* the lift arms and has visibility all around. This safety gives him confidence, speeds the work.

- **Diesel Fuel Range**—Cat Diesels use the heavier, lower-cost, high-energy No. 2 furnace oil—as well as the premium grades.

- **Live-Action Hydraulics**—for fast-acting bucket and lift movements with

high lift capacity. Pump is driven direct from engine, keeps hydraulics fast regardless of load on drive wheels.

- **All-Weather Starting**—with independent gasoline starting engine available on all diesel models. Direct electric key starting is standard.

- **Dual Braking**—one brake neutralizes the transmission as it stops the machine, transferring extra power to the bucket, assuring full loads in tough material. Right brake pedal stops machine with transmission engaged... for full control.

**Your Caterpillar Dealer will gladly show you these machines, their many features and how they can be tailored to your needs. See him soon. Caterpillar Tractor Co., General Offices, Peoria, Illinois, U. S. A.**

## CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

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WHO USES

Rubbair®

the true door . . .  
not a curtain.

Door?



One of 11 Rubbair Door installations at  
Haynes Lithograph Co., Rockville, Maryland

## HAYNES LITHOGRAPH COMPANY

Rockville, Maryland

### READ THIS ACTUAL CASE HISTORY:

"In our printing plant, one of the largest in the Washington, D. C. metropolitan area, we have enjoyed the use of 11 sets of Rubbair Doors Which were installed when the plant was built in 1956. Rubbair Doors permit constant fork lift traffic flow without stops for manual or mechanical operations. They require very little maintenance compared to ordinary type doors, and they maintain heat and humidity levels which is important for printing processes. Wherever we have used them in accordance with their specifications, we have been very satisfied."

(signed)  
Richard P. Peterson  
Plant Superintendent

RUBBAIR DOORS will take the jolt out of your maintenance costs, also. Test them for yourself the next time you have a door problem . . . use RUBBAIR DOORS to assure trouble free operation. Here are some additional advantages:

- Flexible Construction
- Rugged V-Com Hinges
- Safety Cushion Nose
- Positive Air Seal
- Shatter-proof Windows
- Scuff Resistant Wear Panels

If you have an industrial door problem, or are considering new construction or alterations in your plant, drop us a line and let us help you solve it. Write for details and illustrated catalog, today.

**Stic-Klip®**

MANUFACTURING CO., INC.  
RUBBAIR DOOR DIVISION

57 Regent Street  
Cambridge 40, Mass.

Dealerships available in protected territories

Circle 121 on Reader Service Card

## NEWS

### ROUNDUP

#### A great opportunity to reduce costs

TRANSPORTATION AND CARGO HANDLING represent the greatest opportunity to reduce the cost of goods. This was hammered home at the general assembly and technical conference of the International Cargo Handling Coordination Association (ICHCA). Nearly 300 cargo handling experts from all over the world gathered in New York City. Eastern Editor Henry Lefer said the conference was particularly critical of the number of handlings goods go through. This leads to consideration of containerization, but with reservations. Lefer said standardization of containers appeared a lost cause to the conference, but not for trivial reasons: 1—Needs of users vary tremendously. 2—Less advanced nations cannot cope with containers. Some proposed solutions: 1—Aim for compatibility (means of handling containers) rather than standardizing containers themselves. 2—Combine unit loads and containers so, even if containers cannot be handled conveniently, their cargoes can. Some more conference highlights:

**Distribution Costs Affect Consumer Prices.** Gross National Product (U.S.) figures indicate physical distribution as the third largest cost of doing business. It's even more important in international trade with its long distances, more expensive packaging, and many handlings.

**International Implications of Containerization.** Additional encouragement toward standardization is needed at government levels. Other needs: creation of favorable carriers' tariff regulations and rates, and standardization of carriers' tariff conditions.

**Cargo Loss Prevention.** A big difficulty with non-containerized loads is package printing which identifies the contents. This provides thieves with ready, vital information.

**Preparation for Export.** A well-made-up unit load enables you to use a lower packaging standard. Much export cargo, for years to come, will be made up package by package.

**Cargo Marking.** This can help in ship turnaround time. Proper marking cuts down wasted time hunting for badly-marked parcels.

**Port of the Future.** Watch for the "portless port." Sorting, storing, inspection, packaging, and administrative services no longer will take place at the vessel berth. Instead, much of this will be done where the cargo is to go or where it originates.



## ELPAR ACRO-SMOOTH TRUCKS Make Tough Jobs Easy

... hauling sand, transferring delicate loads, moving hot castings, carrying heavy loads over rough floors—these are everyday jobs for ELPAR electric power trucks. In these tough foundry jobs, top quality ELPAR trucks pay off. And they will pay off on the toughest jobs in your plant too.

You can always rely on ELPAR trucks. They are built to handle more loads at the lowest cost.



For information  
on ELPAR trucks for your  
plant, ask for the ELPAR  
Condensed General Catalog.



**The Elwell-Parker Electric Company**

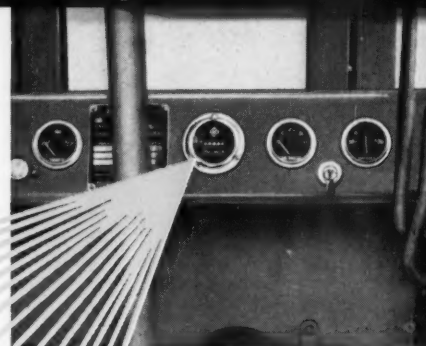
4231 ST. CLAIR AVENUE • CLEVELAND 3, OHIO

In Canada: International Equipment Company, Ltd.

**TWICE THE LIFE . . . ONE THIRD THE OPERATING COST**

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TOTAL HOURS... *and still*  
**NO  
 ENGINE  
 OVERHAUL**

This is why users know there's  
 a Dollar-Saving Difference in  
 Allis-Chalmers Lift Trucks.

We'll be glad to give you the names of  
 owners whose Allis-Chalmers lift trucks  
 have gone over 10,000 hours without  
 an engine overhaul.

Have your Allis-Chalmers dealer  
 show you the many other dollar-saving  
 differences found in Allis-Chalmers  
 lift trucks. Send for bulletin BU-680  
 on the "F-Series" lift trucks.  
 Allis-Chalmers, Milwaukee 1, Wis.

BH-157



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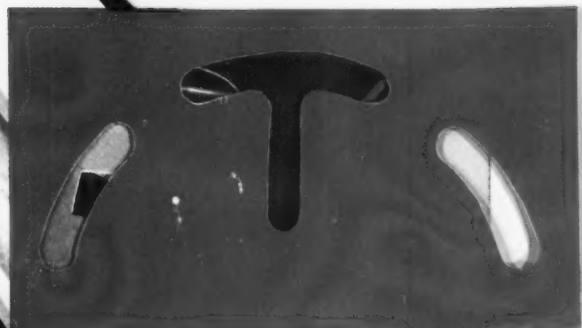
**ALLIS-CHALMERS**



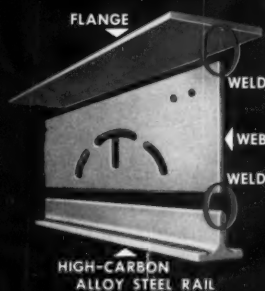
Compare and You'll Choose Allis-Chalmers

Circle 23 →

# A NEW HEAVY-DUTY OVERHEAD TRACK BY CLEVELAND TRAMRAIL TARCA TRACK



- Completely new - - in design - - in fabrication
- Assures more years of heavy-duty service
- Great rigidity    ■ Maximum strength with minimum weight
- Design readily proportioned to suit any load condition
- Overcomes track peening    ■ Greater range of sizes
- New support fittings expedite erection



Tarca Tracks are made under carefully controlled conditions. The three parts, top flange, web and alloy steel rail, are joined by continuous welds to form an integral one-piece section.

Ask for this helpful booklet—No. 2032

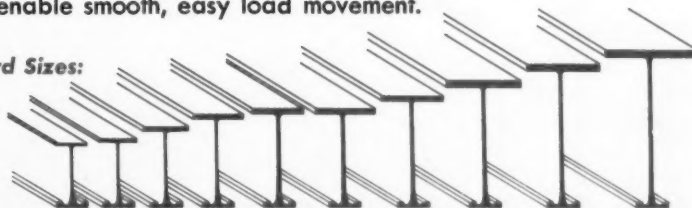
Covers all major features the buyer should know about overhead materials handling equipment. Has complete story on Tarca Track. Contains detailed equipment specifications and handy proposal evaluation form.



Cleveland Tramrail Tarca Tracks are a tremendous innovation in the overhead materials handling field. Another great improvement among many by Cleveland Tramrail to keep it far in the lead.

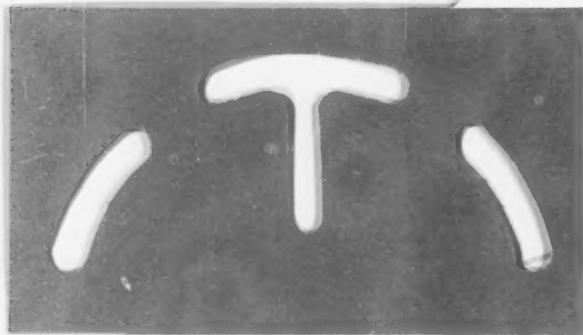
Tarca Tracks are straight, true, accurate—have flat raised treads—of hard, high-carbon alloy steel—prevent peening—provide greater wear resistance—enable smooth, easy load movement.

10 Standard Sizes:



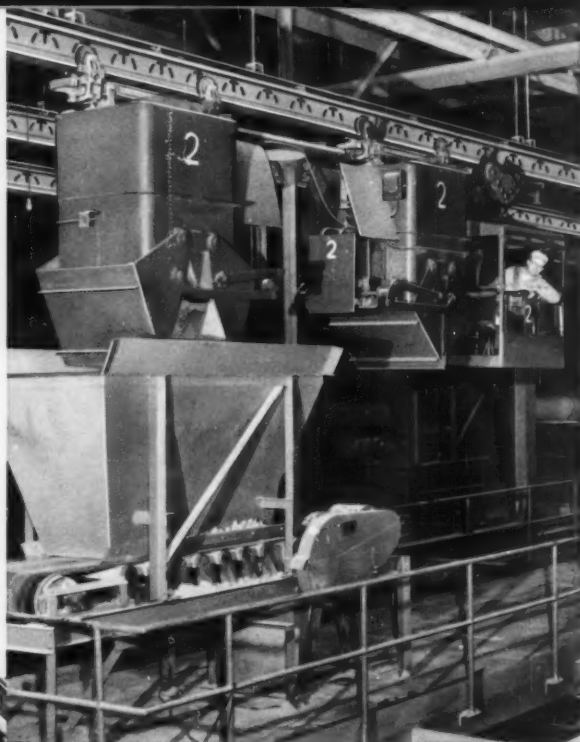
Sizes range from 8" to 20". Also special sizes are easily made to suit any overhead crane or monorail requirement. Tarca Track matches with existing Cleveland Tramrail track installations.

**CLEVELAND TRAMRAIL DIVISION**  
**THE CLEVELAND CRANE & ENGINEERING CO.**  
5899 EAST 284th STREET • WICKLIFFE, OHIO

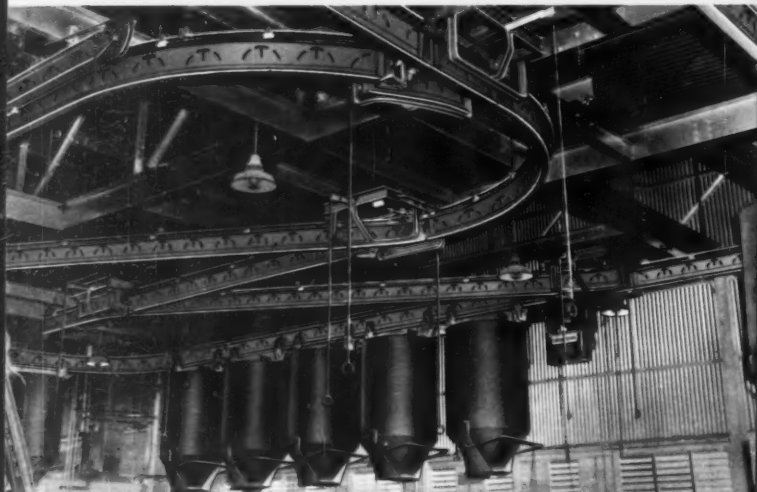


Trade-mark of durability and strength  
—punched into all Tarca Tracks.

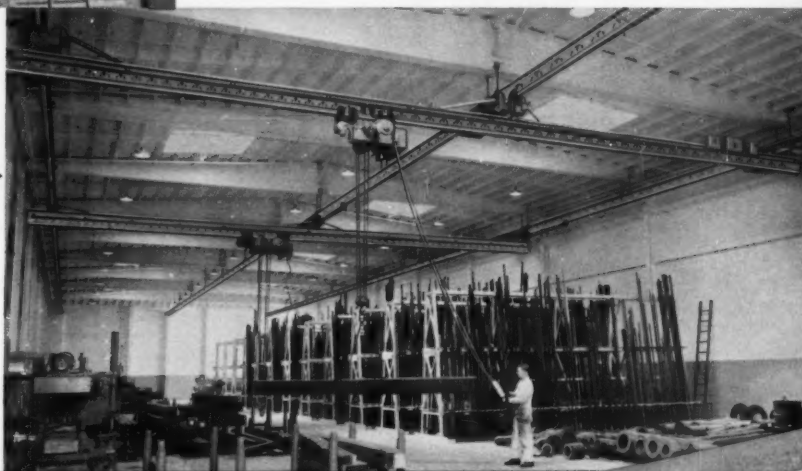
Cleveland Tramrail has an enviable reputation throughout the Ceramic Industry for outstanding performance. Customers have reported that their installations subject to heavy, continual usage are serving them far beyond expectations.



◀ In the Glass Industry Cleveland Tramrail advanced a method of handling mixed ingredients in buckets traveling between mixer and furnaces which prevents segregation. This has proven so successful in assuring uniform quality that today the entire production of many glass plants is dependent upon equipment like that illustrated here.



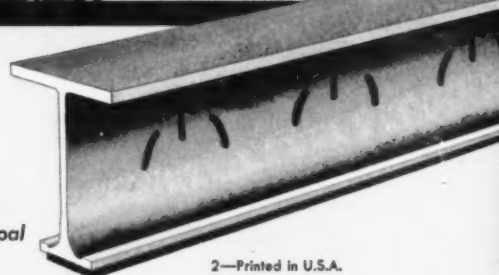
Cleveland Tramrail floor-operated cranes are such an important factor in handling heavy materials and cutting costs that there are now thousands of installations serving factories, mills and warehouses. Tarca Track is of real advantage for crane systems because of its great resistance to deflection.



Your Cleveland Tramrail Sales Engineer is Qualified to give you  
the Complete Design and Application Story on This Revolutionary

## NEW TARCA TRACK

Cleveland Tramrail is represented by competent, experienced engineers in all principal cities of the United States and Canada. Contact address on other side.



2—Printed in U.S.A.



# counterattack

THE  
ENEMIES  
OF  
SOLID TIRES!



## NEW MONOLOK\* PROCESS DRASTICALLY REDUCES MAINTENANCE AND REPLACEMENT COSTS!

Here's your secret weapon against those old enemies of solid rubber tires . . . loose metal scrap . . . brine and acid solutions . . . rough surfaces . . . overloaded conditions and excessive heat. Monarch tires with MONOLOK\* process are chemically bonded to the rim and offer unmatched protection against rim separation . . . the most common cause of solid tire failure. Tough new compound T-5100 rubber gives Monarch tires excellent wear resistance . . . increases tire life . . . eliminates excessive maintenance and early replacement. Press the attack against high tire costs. Install Monarch MONOLOK\* process tires without delay.

FOR ADDITIONAL DETAILS . . . please write direct and request Bulletin 457 B.

SOLD THROUGH LEADING  
LIFT TRUCK DEALERS

\*MONOLOK . . . Monarch's revolutionary process bonds rubber to metal permanently . . . now available on all Monarch tires.



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**MONARCH**  
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30184-MR

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Circle 23

19



# COST

## CUTTING IDEAS

### Rug Handling System Triples Storage Space



Customer orders that formerly took an hour can be processed in three minutes. Unloading semi-trailers once took 4 to 6 men eight hours. Now one man and a fork truck do it in an hour.

The Fred T. Lowy Linoleum & Rug Co., Inc., Minneapolis, tripled storage space without increasing floor space, and sped up its order processing when it bought 6-high steel racks, and stand-up LP-Gas trucks equipped with a 12-foot steel rug pole 2½-inches in diameter.

Up to three years ago, Lowy stacked its rolls of carpeting one on top of the other, two or three high. The rolls average 600 to 800 lb. Several men had to tug and pull to get a roll out of the pile. After cutting, the roll had to be tied up and carried back to the pile again. This manual labor took an hour.

**A three minute job.** Paul Friedman, branch manager, decided to buy racks and fork lifts to store

the rolls six high. The fork lift drives to the rack, inserts the rug pole in the core of the carpet roll, lifts it an inch or two, and the driver lowers the roll to the floor as he backs up. He stops the mast when the carpet roll is about a foot off the floor. Two warehousemen untie the cord that holds the roll, pull the carpeting out to the proper length. The rug pole acts as the roller. They cut what they want from the roll, and the roll is lifted back into the rack . . . all within 3 minutes. The customer's carpeting is then rolled up, and, depending on its size, either carried to the shipping dock by hand or by the fork lift.

The stand-up fork lift turns in a radius of 12 to 18 inches less than a sit-down, thus conserving warehouse space. Friedman says that the speed of processing orders alone paid for the truck in 4 to 6 months, enabled them to handle 15 to 20 times more orders in a day. He estimates a 300 percent

increase in storage space by going into the air on racks, without needing more warehouse space.—*Motec Industries, Inc.*

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### Rack Design Ups Storage Capacity

Tay Holbrook, Inc., San Leandro, Calif., doubled its storage capacity while using 85 percent less floor space than before. The company wholesales plumbing, heating, and industrial supplies. They built a special rack to avoid:

- Waste space
- Housekeeping hazards
- Inventory inconveniences.

Holbrook says the easy-to-reach bays take only 75 sq. ft. of floor space, yet they hold twice as much as they formerly had in 525 sq. ft.


They used 920 feet of standard duty galvanized slotted angle to



frame the compact structure. They sheared the angle to length, lined it up quickly and accurately, held it with either lock or friction-joint bolting.—*Acme Steel Co.*

Circle 251 on Reader Service Card

Continued on page 22



# automatic warehousing...

*the*  *way*

It takes various types of materials handling equipment to make a warehouse completely automatic. And it takes a specialist for each type of equipment to recommend the perfect system.

Some companies are specialists in stacker cranes, others in automatic tow lines, still others in roller dispatching conveyors. A lot of specialists . . . a little responsibility for each.

The Jervis B. Webb Company Divisions manufacture a complete line of materials conveyance . . . all kinds of cranes and monorail systems, all kinds of conveyors, all kinds of controls. There can be many solutions that will comprise a good installation, but **THERE IS ONLY ONE BEST WAY.**

Through Webb versatility, we can analyze your warehousing problem and recommend the *perfect* system, taking complete responsibility . . . **THAT'S THE WEBB WAY.**



**J E R V I S   B .   W E B B   C O M P A N Y**

**8951 ALPINE AVENUE • DETROIT 4, MICHIGAN**

*Send for our free four-page brochure on Automatic Warehousing  
Circle 136 on Reader Service Card*



## COST CUTTING IDEAS

### Coloring Agent Stops Pilferage

The accurate metering of prussian blue dye into salt saved work and opened a new market for Morton Salt Company—the railroads.

The dye stains everything it

touches, so now no one steals bags of salt. Morton also meters, simul-



taneously, a dose of sodium tri-polyphosphate into the salt to keep railroad cars from rusting.

Morton tried various ways of

feeding the prussian blue, all unsuccessful, because it is soft, powdery, very light. They needed a way to feed it into the salt at a closely controlled rate without dusting.

Morton's solution: a stainless steel feeder with vibrating and rotating feed screw worked so well they were able to bring out a new product, Formula 5, used by the railroads to prevent ice from forming in coal cars.—*Vibra Screw Feeders, Inc.*

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**10-DAY  
FREE TRIAL  
OFFER!**

**SAVE MUSCLE...  
SAVE MONEY!**

**LAHER 'LECTRIC LOADER LIFT**

### A MUST FOR A 1000 JOBS

LOADING AND UNLOADING—MOVE IT ANY WHERE—NO HOSE OR ELECTRIC CORD ATTACHED. YOU'VE BEEN LOOKING FOR A LIFT THAT IS EASIER TO MANEUVER—that is built so operator can get hold of it—that is lighter in weight and stronger in construction—that handles so easily you will never let go of it once you try it in your plant!

More capacity—2 powerful batteries instead of 1—highest quality battery charger built in—motor, pump, tank, valve, etc. ALL-IN-ONE substantial unit... the finest, most dependable made in America! You'll find competitive equipment clumsy and awkward to handle by comparison to the LAHER Loader Lift!

**ORDER NOW**—use for 10 full days and, if you aren't 100% sold on the muscle and money saved, you may return it freight prepaid.



### LAHER SPRING & ELECTRIC CAR CORP.

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Terrace, Kansas City • 3041 Olive St.,  
St. Louis • 807 E. 8th St., Los Angeles •  
917 Florence St., Fort Worth • 98-12th  
St., San Francisco • 541 So. State St.,  
Salt Lake City • 714 E. Pike St., Seattle  
• N.W. 15th and Davis, Portland • 1319  
W. Second Ave., Spokane • 1616 L St.,  
Sacramento



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### Carpet Handling Method Saves Storage Space

A boom-and-sling fork truck attachment handles 15-foot-long rolls of carpet quickly and safely at Greenpoint Terminal Warehouse, Brooklyn.

The system reduces handling time while increasing usable carpet storage area 66 percent. Greenpoint is the largest handler of imported carpets in the New York area.

Four men used to be needed to handle the carpets. They lifted the rolls by hand and put them on two



small 4-wheel dollies, one at each end of the roll. The rolls were awkward to handle, and impractical to stack manually more than three high in the warehouse.

Now, they quickly fit a web strap around the roll and attach the strap to a hook on the boom of a fork truck. Using the fork truck, they stack carpets five high, conserve space.—*Clark Equipment Co.*

Circle 253 on Reader Service Card

Continued on page 20

# ASD

## A NEW CONCEPT IN LIFT TRUCKS THAT HELPS YOU CUT COSTS

Take a complete line of lift trucks. Simplify components. Make them more reliable, more accessible. Use the same components in as many models as possible. Combine controls into fewer levers or handles. Add the newest thinking in steering, hydraulics, driver comfort, safety.

The result is ASD—Advanced Simplified Design—an AUTOMATIC program of complete redevelopment and refinement of lift trucks. It is a program of design simplification that only a company with AUTOMATIC's depth of engineering talent could undertake. AUTOMATIC's crisp, clean 1962 design is unprecedented in the industry. ASD improves lift truck performance, increases accessibility for main-

tenance, cuts operating costs, and makes driving easier, safer. It means less down time so that the trucks can spend more time on the job, and move more tons of material.

ASD is already a reality with new models just introduced by AUTOMATIC. And these are just the beginning. More trucks with ASD are on the way to help you move goods more efficiently at lower cost. Ask your AUTOMATIC dealer for the details, or write direct.

see **ASD**  
in action...  
next four pages

# **AUTOMATIC®**

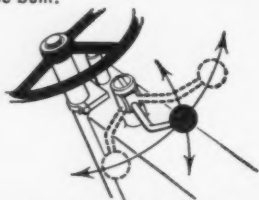
A Division of The Yale & Towne Manufacturing Company  
141 W. 87th St., Dept. W1, Chicago 20, Illinois

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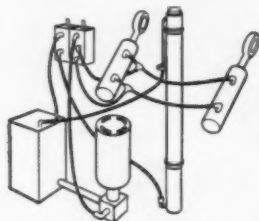
**ASD\* BRINGS LOW  
OPERATING COST AND TOP  
PERFORMANCE TO  
THE MODEL ERS**



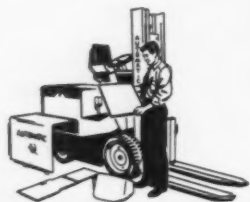
**Silicone-insulated electric motor** — Motor is built by AUTOMATIC especially for lift truck use. Silicone insulation withstands high operating temperatures caused by heavy-duty work cycles, prevents burn-outs and expensive repairs. Motor meets Class H specifications, the highest standard to which electric motors can be built.



**Simplified controls** — Lift and tilt controls are combined in one handle for easier, faster control of forks. Controls can be operated simultaneously or independently. Truck is also equipped with exclusive AUTOMATIC Current Miser Control which reduces current consumption during maneuvering operations.



**Simplified hydraulics** — Compact, simple design and short lengths of hose make hydraulic system easy to check and maintain.



**Easy servicing** — Easily removed covers expose all parts for servicing, simplify maintenance and battery checks.



**NEW HEAVY-DUTY ELECTRIC DOES  
MORE WORK PER BATTERY CHARGE**

Thanks to \*Advanced Simplified Design, this new Model ERS electric truck delivers big truck performance in spite of its extremely compact size. The truck is available in capacities of 3,000 and 4,000 lbs., and is the only unit in this class that can accept a standard 18 cell, 21-plate battery without increasing the truck dimensions.

AUTOMATIC's unique Current Miser Control system provides added torque in low speeds, and saves as much as 60% of the battery power during maneuvering operations. This means more power for heavy-duty handling, less down-time for battery charges, longer work cycles, and more tons handled per battery charge.

The Model ERS also features fast travel (7.0 mph light), and high speed lifts (80 fpm standard, 140 fpm as an extra with 36 v. battery) for top efficiency on high production assignments. For additional details, call your nearby AUTOMATIC dealer or send coupon for literature.

**Only AUTOMATIC trucks have \*Advanced Simplified Design**



**AUTOMATIC®**

A Division of The Yale & Towne Manufacturing Company

141 West 87th Street, Dept. W1, Chicago 20, Illinois

Please send specifications on Model ERS Battery-Powered Lift Truck.

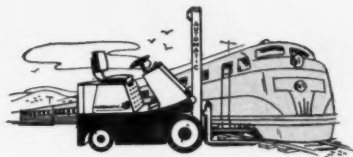
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Company \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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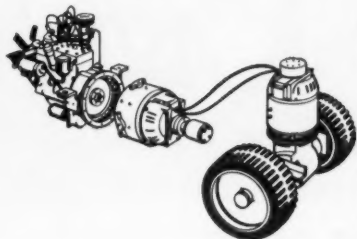
MATERIAL HANDLING ENGINEERING



**HERE'S HOW ASD\*  
MAKES THE MODEL GLF  
MORE ECONOMICAL,  
EASIER TO SERVICE**



**Electric drive efficiency**—Since there is no direct coupling between engine and drive axle, engine speed is not dependent on truck speed. This means torque can be varied by the requirements of the load and that the engine can operate at its most efficient speed at all times. This efficiency has been proven in railroad use with the result that almost every locomotive in operation today is powered by a Diesel-electric unit.



**Simplified power train**—Engine plus variable voltage generator (one moving part) connected by two wires to electric drive motor (one moving part) equal \*Advanced Simplified Design. This completely job-proven drive, as standard equipment on the GLF Series trucks, senses the power needs and automatically adjusts to varying torque and speed requirements. There are no shifting gears, no friction clutches, no slushing oil, no valving or piping—virtually nothing to wear out or cause trouble so common to other types of automatic transmissions.



**Easy maintenance**—All parts are easily accessible for maintenance by removing three pieces of shrouding—engine cover, floor board, and front cowling. Hydraulic pump can be removed by disconnecting two hydraulic fittings and unscrewing two bolts. Brakes can be adjusted without removing the wheels.

November 1961



**GAS-POWERED TRUCK WITH  
HIGH-EFFICIENCY TRANSMISSION**

*cuts fuel costs as much as 30%*

There's a big difference in gas-powered trucks . . . and the AUTOMATIC Model GLF has the difference that makes real savings in fuel costs and maintenance expenses.

Actual field tests have shown the Model GLF's exclusive electric drive delivers gas savings up to 30%, compared to other types of automatic transmissions. The Model GLF is available in capacities of 3,000 through 10,000 lbs. with cushion tires; 3,000 through 8,000 lbs. with pneumatic tires. Choice of gas or LPG.

This is one more example of how AUTOMATIC has engineered lift trucks with \*Advanced Simplified Design to give you more dependable, more economical trucks for the money. It's another reason why it pays to contact your nearby AUTOMATIC dealer when you need lift trucks. Call him . . . or mail coupon for full details on the Model GLF series.

**Only AUTOMATIC trucks have \*Advanced Simplified Design**



**AUTOMATIC®**

A Division of The Yale & Towne Manufacturing Company

141 West 87th Street, Dept. W1, Chicago 20, Illinois

Please send Facts and Factors Brochure on Model GLF gas-powered lift trucks.

Name \_\_\_\_\_ Title \_\_\_\_\_

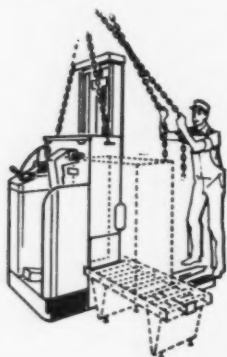
Company \_\_\_\_\_

Street \_\_\_\_\_

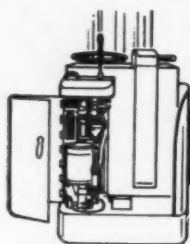
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle 142 on Reader Service Card

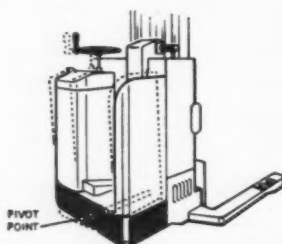
**HERE'S HOW ASD\*  
MAKES THE MODEL VST  
EASIER TO DRIVE  
AND SERVICE**



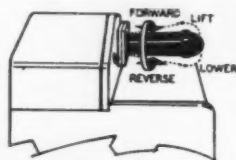
**Battery removal** top or side. Battery can be rolled out from either side. Steering wheel and Quadrol controller swing back to allow overhead removal or servicing.



**Accessibility** of parts simplifies servicing. Rear cover swings out to put drive motor, electrical components, and brake within easy reach for servicing.



**Knee action frame** assures stability under all conditions. Straddle arm section pivots independently of drive unit section, preventing frame distortion, lack of traction, and instability on uneven floors.



**Quadrol** control handle combines speed and lift controls in one unit for easier driving. One handle controls three speeds forward and reverse, plus lifting and lowering of the forks.



another  
**AUTOMATIC**  
lift truck with  
**ASD\***

**IT'S SO EASY TO DRIVE,  
NARROW AISLES SEEM WIDER**

\*Advanced Simplified Design has made this new AUTOMATIC Model VST a real performer in narrow aisles. It is not only extremely compact and maneuverable, but its simplified controls permit faster, safer driving. Aisles actually seem wider with the Model VST on the job. Result: More goods handled in space-saving narrow aisle warehouses and other cramped storage areas.

Thanks also to Advanced Simplified Design, maintenance is easier and requires less time. The truck stays on the job longer and moves maximum tonnage. The Model VST is available in capacities of 2,000, 3,000 and 4,000 lbs. Get the full details. Ask your AUTOMATIC dealer, or send coupon for Model VST literature.

**Only AUTOMATIC trucks have \*Advanced Simplified Design**



**AUTOMATIC®**

A Division of The Yale & Towne Manufacturing Company

141 West 87th Street, Dept. W1, Chicago 20, Illinois

Please send Specification Sheet on Model VST narrow aisle truck.

Name \_\_\_\_\_ Title \_\_\_\_\_

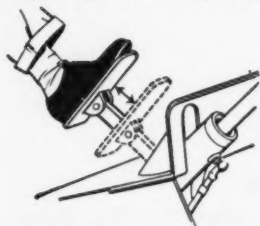
Company \_\_\_\_\_

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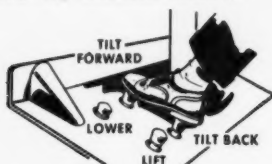
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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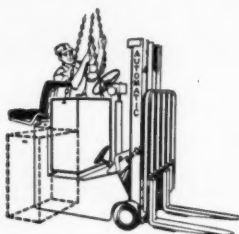
**HERE'S HOW ASD\*  
PUTS THE MODEL RST  
AT THE TOP OF ITS CLASS**



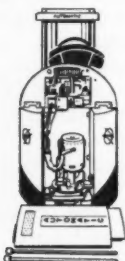
**One pedal works both brake and accelerator**—Driving this truck is a snap with its simplified controls. Operator pushes down on foot pedal to increase speed, lets pedal up to coast or apply brake. One easy motion of operator's foot accelerates or slows truck in a smooth, fully controlled manner.



**Foot-controlled lift and tilt** This ASD\* feature keeps operator's hands free for steering truck, makes possible faster handling because operator can easily perform two functions at once. Lift and tilt cylinders are controlled by throttle-type valves which give smooth movement of forks and mast.



**Easy battery removal**—Battery is completely exposed for checking or replacement. Seat hinges back to give full access to battery for either side or overhead removal.



**Easy maintenance**—Two special hinged covers at the rear of the truck open to expose drive motor and electric controls for servicing. Drive motor and many major component parts are interchangeable with other AUTOMATIC trucks, increasing parts availability and simplifying servicing.

November 1961



## NEW COMPACT ELECTRIC RIDER SPEEDS HANDLING IN TIGHT SPOTS

Here's a new counterbalanced truck with \*Advanced Simplified Design that speeds handling of goods in narrow aisles, trailer trucks, and on crowded docks. The model RST is ideally suited for warehouse operations, light industry, and retail supermarket handling. Compact design, short turning radius, and good weight distribution make an outstanding unit for working inside trailer trucks or in buildings where space is a premium. Has extra fast travel and lift speeds for greater efficiency. Three capacities: 2,000, 2,500 and 3,000 lbs. Even the price is compact! Get the details—call your nearby AUTOMATIC dealer or mail coupon for literature.

**Only AUTOMATIC trucks have \*Advanced Simplified Design**



# AUTOMATIC®

A Division of The Yale & Towne Manufacturing Company  
141 West 87th Street, Dept. W1, Chicago 20, Illinois

Please send specifications on new compact electric truck, Model RST.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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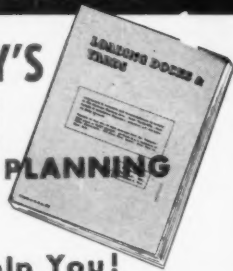


## PLANNING A NEW TRUCK DOCK?

### KELLEY'S FREE DOCK PLANNING KIT

Can Help You!

Whether you're at the blueprint or "just thinking" stage, you need Kelley's brand new reference booklet on loading dock layout. It provides important data on driveway, aisle, canopy and door requirements, dock heights, current truck-trailer dimension restrictions, etc. Also, includes complete specs on industry's No. 1 Adjustable Dockboard—Kelley's ADJUST-A-LIP. Make yours a modern, efficient and safe dock operation. Act now! Mail coupon today!



LIP ADJUSTS OUT...

AUTOMATICALLY!

LIP ADJUSTS IN...

AUTOMATICALLY!

DOCKBOARD ADJUSTS  
UP AND DOWN...

AUTOMATICALLY!

**FREE** Get the FACTS!  
Send for details TODAY!

- ☐ FREE KIT — "How to Plan a Profitable Truck Dock Operation." Get Booklets on Dock Safety, Modernizing, Levelation Data, Dock Designs, etc.
- ☐ FREE SURVEY — No obligation.

Tear out and attach this coupon to your letterhead. Sign your name and mail to:

**HI-LO** **KELLEY**  
*Adjustable* **COMPANY**  
**DOCKBOARDS** **INC.**  
2139 W. MILL ROAD  
MILWAUKEE 9, WISCONSIN

Circle 75 on Reader Service Card

## COST CUTTING IDEAS

### Tubular Conveyor Carries Away Chips

An auto manufacturer was accumulating large quantities of aluminum chips in dump hoppers. A large drag conveyor passed right through the department, but the conveyor was 19 feet high. The difficulty was getting the chips up and over to the drag conveyor.

The answer: the company bought a tubular conveyor; also provided a convenient floor level hopper to receive chips. The conveyor is routed to dodge obstacles by a strategic combination of 90-degree bends and straight runs. The chain length is 96 feet, casing size is 6½ in. square. It runs continuously.—Prab Conveyors, Inc.

Circle 255 on Reader Service Card

### Cord Strapping Secures World-Wide Shipments

The American Society for Testing Materials, Philadelphia, uses a new rayon cord strapping for



shipments of books, catalogs, etc. sent throughout the world. They pack the books in corrugated cartons of various sizes.

The ASTM experimented with the rayon cord and other strapping materials in test shipments, liked the ease of handling, economy, and the good job, now uses the rayon cord on all its book shipments.—American Viscose Corp.

Circle 254 on Reader Service Card

Continued on page 30



## EASY GOING...WITH *Shoksorb*

Shoksorb permanent-cushion paper means *easy going* for your products. It's softer, yet tougher—made better, to protect every surface, edge and corner, all the way to destination. Features 24 deep cushion molds per square inch each side, formed to stay—the *original* shape of the springy, even-fibered paper. Exclusive diagonal pattern adds strength . . . permits maximum flexibility. Costs no more than ordinary packing papers . . . in lined and unlined sheets and rolls; kraft and crepe-wrapped pads. For wrapping, interleaving, carton lining, carlining, dunnage. Send for Shoksorb samples and illustrated catalog.



**KIEFFER  
PAPER MILLS**

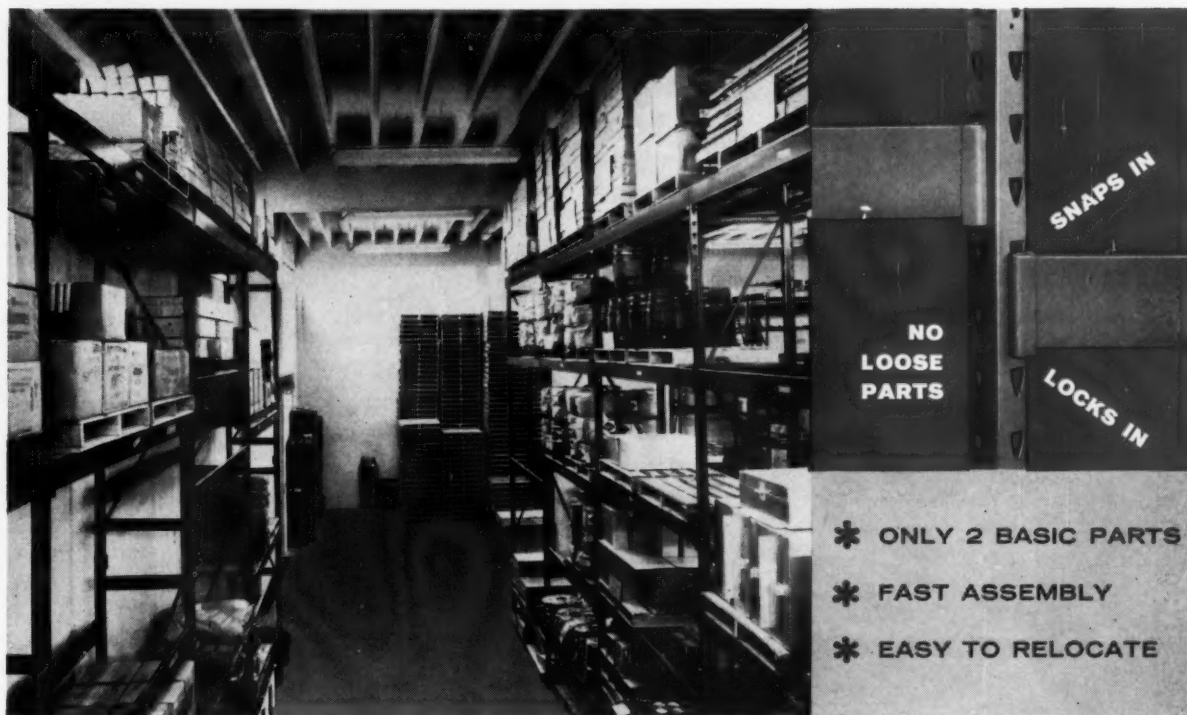
BROWNSTOWN, INDIANA

Circle 76 on Reader Service Card  
MATERIAL HANDLING ENGINEERING

# FLEXIBILITY

## **EMI air-row head pallet racks**

the most flexible,  
cost saving and work saving  
racks in the industry.



## **EMI air-row head DRIVE-IN RACKS** **EMI air-row head DRIVE-THRU RACKS**

These strong, efficient, space-saving racks are all  
engineered on the AIR-ROW Head principle  
with basic interchangeable parts.

### **EQUIPMENT MFG. INC.**

21552 HOOVER ROAD • DETROIT 5, MICHIGAN  
Circle 44 on Reader Service Card

Before you build, remodel or add  
to a storage area, **FIND OUT**  
**ABOUT AIR-ROW HEAD RACKS**  
**WRITE FOR DETAILED INFORMATION**

YOU CAN STACK ANYTHING ON **EMI** RACKS

## COST CUTTING IDEAS

### Nesting-Stacking Trays Solve Handling Problem

To speed assembly and cut out the manual handling of trays, the Small Air Circuit Breaker Division of I-T-E Circuit Breaker Co., Philadelphia, installed a conveyor. It

carries moldings through the assembly.

As production increased, ma-

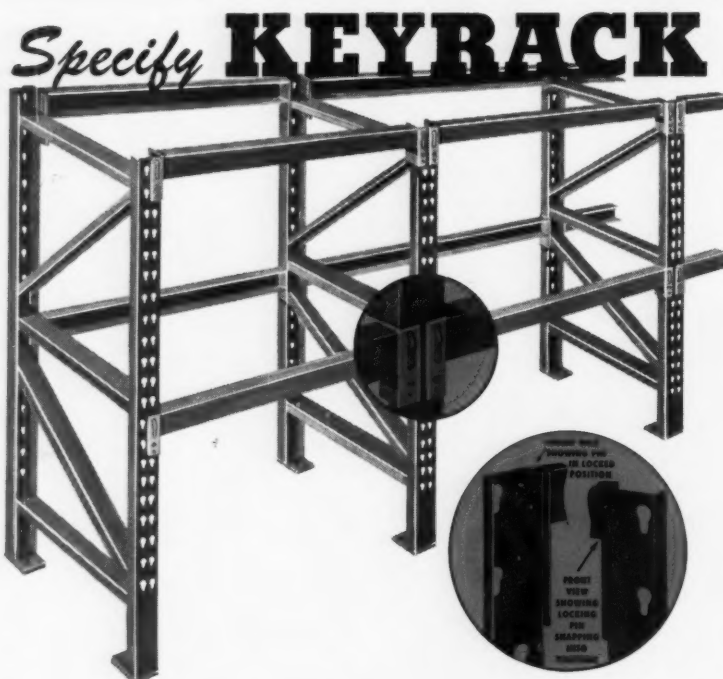


terial handling grew more complicated. It became difficult to keep an even supply of parts on

the line. The containers just couldn't meet the increased production. They were of all kinds, metal trays, wooden boxes, etc. And they couldn't be stacked.

SACB went to a vulcanized fibre material handling container, equipped with stacking rods. Over 1000 are now in use in the plant. The company modified plant equipment a bit to increase their usefulness. The trays are a standard size, so you can accurately estimate contents. The company says they've cut maintenance and replacement costs for trays, and are keeping down part damage.—*National Vulcanized Fibre Co.*

Circle 256 on Reader Service Card



### RUGGED, 2-PIECE STORAGE RACK WITH BUILT-IN SAFETY LOCK \*

An engineering achievement in storage racks. Now you can easily erect a storage rack in your plant with minimum effort and maximum use of cubic area. Safety locking device automatically snaps into position affording protection against accidental impact by lift trucks or equipment. Just tap into place (see insert) you do not have to touch the lock. Observe the positive locking action! All Keyracks are provided with heavy gauge channel bracing.

#### OTHER PRODUCTS OF STORACK CORP.

**STORACK** — A metal bolted framing rack, for the exceptional storage application.

**RACKS THAT STACK** — Specially designed for coils, bar stock and pipes.

\* PATENT APPLIED FOR



## STORACK CORPORATION

2100 GREENWOOD ST. • EVANSTON, ILLINOIS

Circle 122 on Reader Service Card

### Steel Boxes Protect Delicate Assemblies

Rowe Manufacturing Co., Inc., a division of Automatic Canteen Corp. of America, uses over 5,000 corrugated steel boxes and skids



in its material handling program. Rowe not only assembles machines, it also makes nearly all the parts that go into them.

Rowe assembles coin mechanisms, they are delicate. Rough handling spoils the calibration. Ordinarily, custom racks would be necessary, but Charles S. Bindig, staff industrial engineer, designed an insert that holds 16 assemblies. They load the insert, set it into a steel box. A platform truck then takes the steel box away.

Rowe's boxes are all 32 x 42 inches, come in two depths: 18 and 32 inches. All skids are 32 x 42 inches. The company uses the boxes for storage, stacks them five-high, back-to-back to form double rows.—*Berger Division, Republic Steel Corp.*

Circle 257 on Reader Service Card

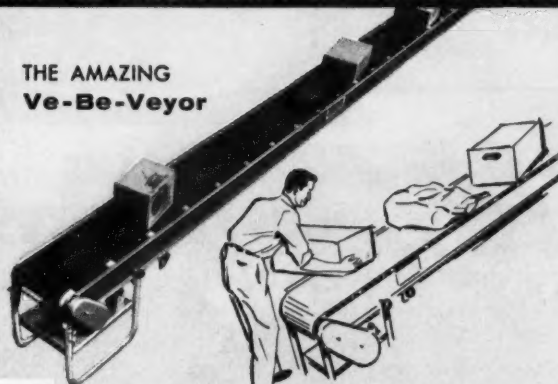
Continued on page 32

MATERIAL HANDLING ENGINEERING



## THE COMPLETE LINE OF CUSTOM AND PRE-ENGINEERED CONVEYING SYSTEMS

### THE AMAZING Ve-Be-Veyor

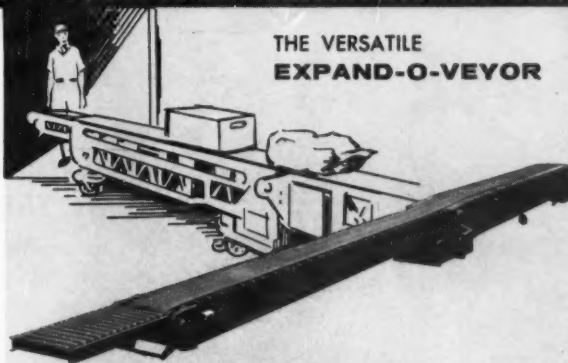


✓ **MOVE CARTONS, BOXES, BALES OR BAGS**

Portable, lightweight, plugs into any standard 110 V. outlet. Fast, easy, level or incline (up to 30°) handling of cartons, boxes, bales or bags. Ideal for 1001 jobs in all kinds of plants, industries and farms. Ask for complete information. *Bulletin No. 600.*



### THE VERSATILE EXPAND-O-VEYOR



✓ **GETS INTO EVERY PART OF THE TRUCK OR CAR—FOR FASTER LOADING OR UNLOADING**

Make this conveyor as long or short as it needs to be to get right to the very loading or unloading point. Cuts time in half...speeds deliveries...cuts costs. Ideal for integration with permanent conveyor installations. Get full details. *Bulletin No. 439-439A.*



## WHEN YOU WANT THE RIGHT CONVEYOR FOR ANY JOB—CHECK WITH CSI-Farquhar

The most complete line in industry is available from your CSI-Farquhar dealer. He'll be glad to make recommendations and fill you in on all details. Where you require custom installations, our CSI-Farquhar engineers are well qualified as material handling consultants. Let us hear from you today!

### CONVEYOR SYSTEMS, INC.

6479 Main Street

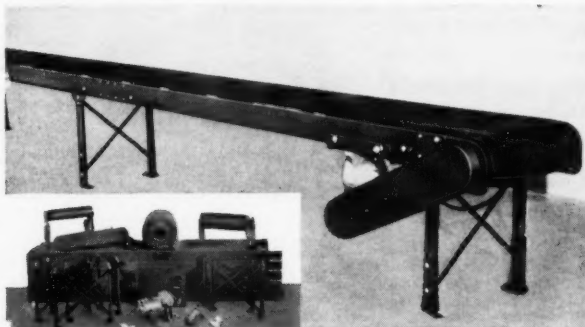
• Morton Grove, Ill. (Chicago Suburb)  
Phone: JUNiper 8-0200



SINCE 1856



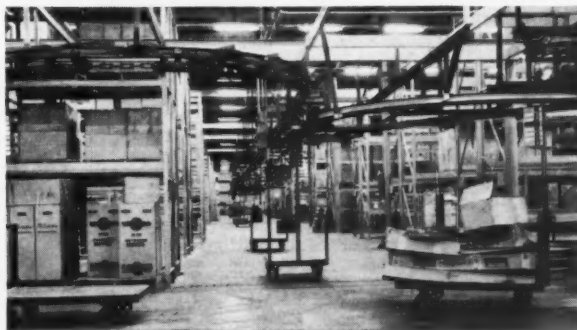
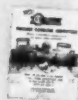
SEE THE YELLOW PAGES FOR YOUR CSI-FARQUHAR DEALER OR WRITE DIRECT



✓ **INTEGRATED HIGH SPEED PACKAGE HANDLING WITH STANDARD COMPONENTS**

Here are low cost units for package handling and loading. Build high capacity conveyor systems with pre-engineered CSI-Farquhar units. High efficiency without high costs!

Select units from the complete line—gravity, power belt, and portable—to make a systematized line set up the way you want it. Detailed information furnished in *Bulletin No. 536-538.*



✓ **COMPLETE SYSTEM HANDLING FOR TOTAL AUTOMATION**

Total automation is the difference between success and failure in heavy competition. CSI-Farquhar offers you the complete approach that searches out any possibility where substantial economy may be gained. This complete approach has a successful record in solving difficult conveyor problems in America's foremost industries.

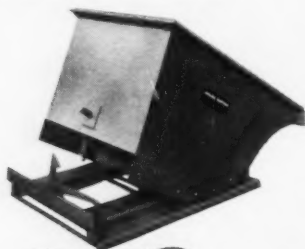
For automatic system handling in the most modern sense, contact us. We can help your drive toward lower costs. Ask for *Bulletin No. 70.*



PORTABLE AND STATIONARY BULK HANDLING CONVEYORS FOR CONSTRUCTION, CHEMICAL, COAL AND OTHER INDUSTRIES

Circle 27 on Reader Service Card

# HOW TO SAVE 50% IN SCRAP HANDLING COSTS!



Equip your plant with Roura Hoppers—just as thousands of others have! You'll cut as much as half the cost of handling scrap and all other bulk materials. Put Roura Hoppers to work moving scrap, metal small castings, cinders, punch press parts, glass, hot forgings or cullet. You'll see the savings right away.

A Roura Hopper may be carried by any lift truck (fork or platform) . . . and with complete safety. A simple latch lets it automatically dump and then return to a locked upright position when empty. For more information, phone us collect at TOWNSEND 8-3560 or use coupon.

**SPECIFICATIONS:** Eight sizes,  $\frac{1}{8}$  to 4-yard capacities. Construction:  $\frac{3}{16}$ " steel plate with continuous arc-welded seams. Also available in heavier plate, galvanized, stainless or aluminum. Mounted on skids or choice of wheels. Standard models shipped from stock.

## ROURA Self-Dumping HOPPER

**WANT MORE DETAILS?** Just clip this coupon to your letterhead and mail to  
**ROURA IRON WORKS, INC.**  
1411 Woodland Ave., Detroit 11, Michigan

Circle 113 on Reader Service Card

## COST CUTTING IDEAS

### Cargo Handling Crane Speeds Ship Loading

A new overdeck cargo handling crane recently placed aboard the



SS *President Lincoln* at San Francisco is a giant step towards automated ship loading.

The Lincoln is one of the first two newly built U.S. ships to transport containerized cargo. The crane will load and unload 20' x 8' x 8' cargo containers weighing up to 25 tons each.—*Lake Shore, Inc.*

Circle 258 on Reader Service Card

### Radio Gives Split Second Dispatch

A \$25,000 radio installation gives Ringsby Denver terminal instant communications with 23 pickups and delivery trucks.

Engineer Richard L. Rickenbacker says the radio is paying for itself in time savings and new



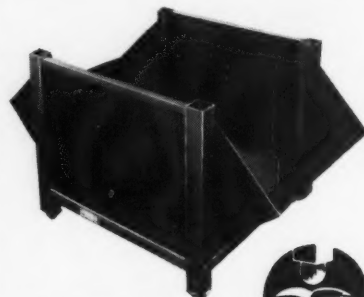
business. Pickup drivers used to phone the office for orders. "Not only did this waste time, but also the drivers often had to backtrack," says Rickenbacker. "Now we have instant voice communication with our drivers."—*Motorola, Inc.*

Circle 259 on Reader Service Card

Continued on page 34



## STACKING HOPPER BOXES



- SAVES SPACE
- TIME — LABOR
- INCREASES PRODUCTION
- MULTIPLE STACKING
- ACCESSIBILITY EITHER ONE OR BOTH ENDS.
- CAPACITY 4000 LBS. IN STANDARD SIZES.



### RUGGEDLY DEPENDABLE!

CERCO Stacking hopper boxes have a heavy welded steel tubing frame and heavy gauge sheet metal deck, sides and hopper. Boxes can be furnished with hoppers either one end or both ends. Standard size 30"x30"x20", excluding hoppers. Special sizes designed to meet your material handling problems.

Write for information.

## C. E. ROBINSON CO.

Phone: 5Aratoga 3-3403  
222 COLBURN AVENUE  
JOLIET, ILLINOIS

Circle 112 on Reader Service Card  
MATERIAL HANDLING ENGINEERING

# CRANE

DESIGNERS

# CRANE

BUILDERS

# CRANE

## Counselors

Since 1910

In designing and building cranes since 1910 this company has adhered to a policy of thoroughly studying each problem presented from the standpoint of conditions faced and service to be rendered in order to recommend the proper type of crane and equipment.

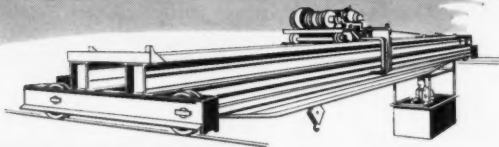
Growth in future demands is also considered and it is significant that some of the first Euclid Cranes manufactured are still in service. Impressive, too, is an uncommon record of repeat orders.

Euclid has the experience to study needs and render sound counsel to crane user; also engineering personnel and factory facilities to translate the facts obtained into equipment of the highest order.

You are invited to avail yourself of this counsel and can do so without entailing any obligation.

**The EUCLID CRANE & HOIST Co.**  
EUCLID, OHIO

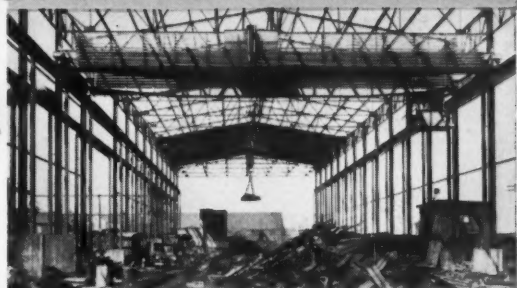
# Euclid Cranes



**ELECTRIC HOISTS, Also**



Euclid Overhead Crane and Semi-Gantry Crane serving the assembly floor of a large machinery manufacturer.



Outdoor Crane equipped with two hoists; also facilities for operating both magnet and scrap iron grapple.



Indoor-outdoor, center controlled crane operating in a large shipbuilding plant.

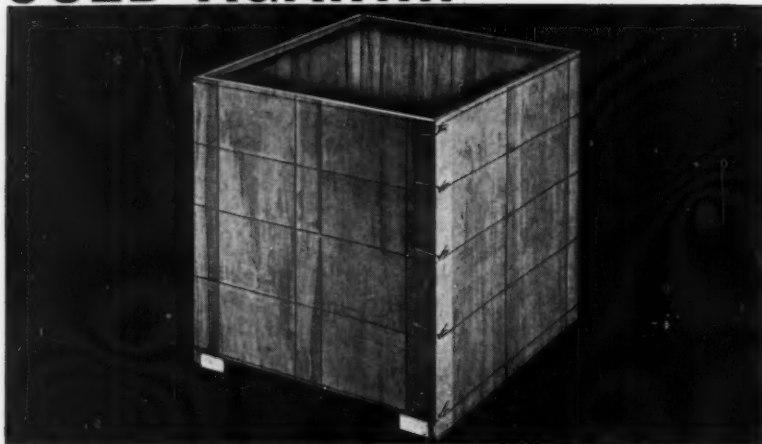


Underslung, floor controlled crane designed to afford maximum use of a material warehouse.

Circle 45 on Reader Service Card



# USED AGAIN...



# AND AGAIN...




# AND AGAIN!



## WIREBOUND PALLET BOXES

For all kinds of materials handling and storage, Superstrong Wirebound Pallet Boxes offer outstanding economies. Strong, lightweight, versatile, they stay on the job of making lighter work on assembly lines and other production operations. Better get the full story now.

WIREBOUND BOX DIVISION

**St. Regis** 

PAPER COMPANY

P. O. Box 4433 • Chicago 80, Illinois

REPRESENTATIVES IN ALL PRINCIPAL INDUSTRIAL AREAS

**Send**

for free Superstrong Wirebound information... call CANal 6-0973 or write Dept. 300

Circle 116 on Reader Service Card

## COST CUTTING IDEAS

### Fuel Savings Result From Smaller Diesels

Smaller diesel engines now on the market are opening up new possibilities for lowering operating costs and better performance for equipment in the lumber industry.

J.T. Wages of the Wages Lumber and Kiln Drying Co., Decatur, Ga. reports fuel savings up to \$5 a day after repowering their fork lift with a small diesel engine.—*Detroit Diesel Engine Div., General Motors Corp.*

Circle 260 on Reader Service Card

### Fork Truck Handles Heavy Equipment

A fork truck proved to be the most economical way to move heavy oil field equipment to outside storage at the Beaumont (Texas) Plant of Alco Products, Inc.

Some of the equipment weighs as much as 20 tons. They decided on a heavy-duty fork truck "be-



cause it cost about \$35,000 less than the next best method."

The plant assembles diesel-electric power plants for oil field drilling rigs, makes valves and heat exchangers used in pipelines and refineries.


Typical load: a diesel-electric generating set weighing 36,000 lb. They attach the set to a lifting frame which is easily picked up by the 40,000-lb. capacity truck. Hooks on the frame enable cranes to lift them if there are no fork trucks.—*Clark Equipment Co.*

Circle 261 on Reader Service Card

Continued on page 39

MATERIAL HANDLING ENGINEERING

# EXIDE POWER PACKAGE

Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa. 



## 85 AMP-HR—ONLY 22<sup>5</sup>/<sub>8</sub> in. HIGH!

Here's the new high in battery capacity for electric industrial trucks—the Exide-Ironclad TSC Battery. It is available right now and it will fit in the battery compartments of your present trucks without modification. It conforms to the design thinking for future trucks as expressed by truck manufacturers.

This battery offers a capacity of 85 amp-hr per positive plate—increased from the previous highest available capacity of 80 amp-hr in the Exide-Ironclad TGS—and still with over-all height of 22<sup>5</sup>/<sub>8</sub> in. The

length and width dimensions of the battery are also unchanged. Therefore the new battery occupies the same space as present batteries.

A unique feature of the Exide-Ironclad Battery is the tubular construction of the positive plates. With the square-shaped tube, introduced over a year ago in the TGS Battery, Exide made it possible to get higher capacity from each positive plate through greater area in contact with the electrolyte.

Now, in the TSC Battery, Exide introduces woven mesh tubing, still square shaped, but with higher porosity for easier access of electrolyte. This new tubing is able to hold more active material, which, in addition to the higher porosity, results in higher capacity than ever before. The tubing is of a special nonoxidizing material of proven long life in extensive laboratory tests and field applications.

This increase in battery capacity has been achieved without increasing the height of the battery. Thus you can step up the work capacity of your present trucks without the extra expense of modifying the battery compartments. The Exide-Ironclad TSC is still only 22<sup>5</sup>/<sub>8</sub> in. high. Likewise its specific gravity is still only 1.275.

Circle 40 on Reader Service Card

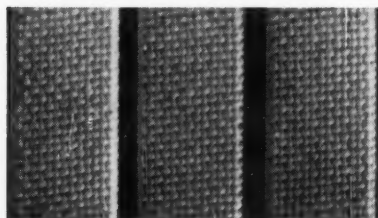
Hence battery life potential remains high.

With the introduction of the Exide-Ironclad TSC, Exide now makes it possible for you to match your particular battery power requirements more closely than ever. If you are ready to buy a new truck or new battery now, talk with your Exide representative about how you can get the maximum power for your dollar.

Only Exide offers so broad a range of battery types: Exide-Ironclad, Exide-Powerclad premium flat plate, and Exide Nickel-iron alkaline (invented by Thomas A. Edison). Exide chargers are available in both motor-generator and silicon rectifier types, in sizes to cover all needs. Exide service men are coast to coast, all factory trained in both batteries and chargers.

Make sure you get maximum economy in your battery power. Write Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

# Exide®



**New tubing boosts battery capacity**

Side view of tubing magnified twice size shows the fine mesh with thousands of pores for easy flow of electrolyte. Holds active material firmly against loss.

## Somewhere near you...

there's a man and a forklift . . .

not an ordinary man . . . not an ordinary forklift. The man is an experienced Clark service technician. The truck is a Clarklift . . . sometimes misused, sometimes abused beyond reasonable limits. Still it keeps lifting, hauling, storing.

The man is adding the priceless ingredient to this workhorse of the warehouse. The ingredient is service . . . Clark Planned Maintenance at the job site, Genuine Clark Original Equipment Replacement Parts. Service goes with the sale of every Clarklift whether it be in San Diego or Montreal; Collier City, Florida or Deep Creek, Washington. It's the added value you can measure. It's the best reason in the world to buy Clark.



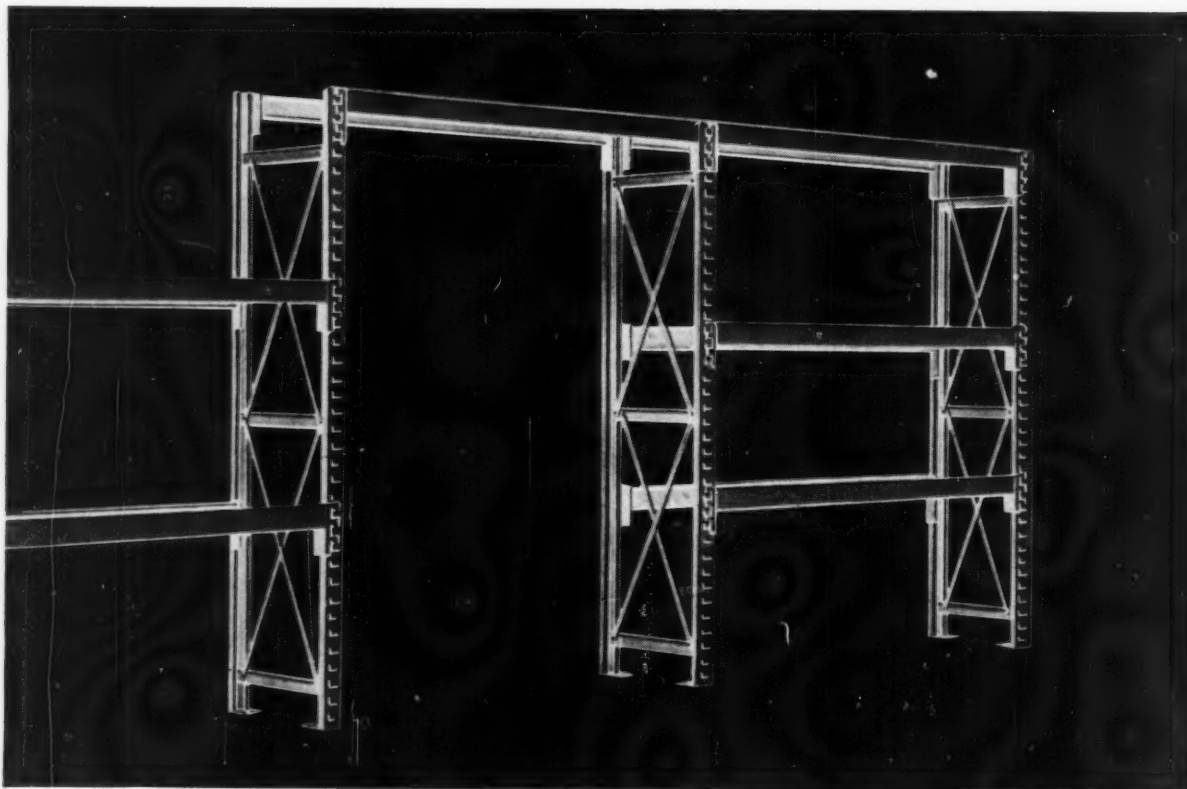
Industrial Truck Division  
CLARK EQUIPMENT COMPANY  
Battle Creek, Michigan





*For complete information  
about Clark Added Value Service  
circle 77  
on reader service card*

# PALMER-SHILE UNVEILS the standard series 75

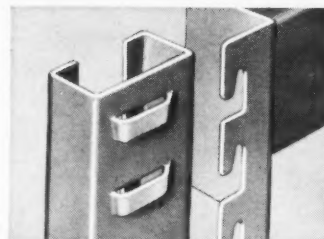


## ... AVAILABLE FROM STOCK AT LESS COST

Here's the biggest news in the materials handling industry in years. Production of the Standard Series 75 storage rack now makes it possible for you to order the finest rack system available ... *from stock*. The new Palmer-Shile Standard Series 75 storage rack fulfills *more* requirements in a *more* superior manner than any rack in Palmer-Shile history. There's a range of 16 potential rack sizes to choose from—including a one-shelf-high rack.

The Standard Series 75 has the familiar Palmer-Shile characteristics which have made the custom Series 75 the talk of the industry: uniqueness, adjustability, versatility and strength. There's no metal removal in the construction of uprights. All uprights are sway-braced at the factory. Locks are cold formed from the material itself. Each rack adjusts on three-inch centers from top to bottom.

The Standard Series 75 can be erected in a matter of minutes—there are no third-piece connectors. Cross members lock immediately and positively to the uprights in a two-piece system. All units are finished in Palmer-Shile Safety White, an innovation that increases rack visibility and considerably improves the appearance of storage areas. Each shelf carries a conservatively rated 4,000-pound capacity. Before you consider the purchase of any rack you owe it to yourself to check into the facts: to see how much better, quicker and more economically the Standard Series 75 can serve your storage needs.



Costs and sizes for the Standard Series 75 are as follows: UPRIGHT FRAMES 96" x 30" (14.25) / 96" x 36" (14.50) / 120" x 30" (15.50) / 120" x 36" (15.75) / SHELF BEAMS 54" (6.90) / 90" (12.60) / 108" (16.25) / 120" (19.55). All shelf beam prices and specifications are per pair.



Circle 107 on Reader Service Card

## COST CUTTING IDEAS

### Handling Time Cut One-Third

Morrison Cafeterias Warehouse, Tampa, reduced handling time by one-third and at the same time increased usable storage space by half. Method: they converted from manual to mechanized handling and stacking.

Daily, the warehouse receives, stores, and ships about 200 tons



of food for its 51 restaurants. Inventory is palletized and handled by two electric fork lift trucks of 4,000-lb. capacity.

They stack pallets of unit loads (such as 12 crates of produce totaling 1,200 lb. in picture) two and three high with lift trucks equipped with triple stage up-rights. This, says the company, enables them to store 50 percent more inventory in its 50,000 sq. ft. warehouse. The trucks handle regular and refrigerated goods, also work in a frozen food locker at temperatures as low as -10 degrees F.—Clark Equipment Co.

Circle 262 on Reader Service Card

### Grapple Handles 150 Tons of Refuse Daily

Operating from a 6,000-lb.-capacity monorail hoist, a 1½ cu. yd. lever arm tine-type grapple speeds refuse handling at the Rye, N.Y. incinerator plant. The TI-150 is reeved with four parts of line. This makes for speedy work and digging ability. The grapple has a 27-inch style-A straddle-type equalizer to prevent bucket twist.

The grapple on the hoist eliminates manually picking up refuse.—Blaw-Knox Co.

Circle 263 on Reader Service Card

Continued on next page

# Nutting

shows you  
"HOW"...

## the widest choice of floor trucks in the world can cut your costs!

For regular or "special" design floor trucks it pays to talk to Nutting first. Here's why: no other company makes more models, sizes or combinations of equipment than Nutting. Many times items which you may find listed as "specials" with other makes are regular equipment in Nutting's complete line. As a result you get "custom built" trucks at production line prices. You not only get overall lower prices; you also get the benefit of 70 years of experience, design "know-how" and modern manufacturing skills. To save valuable hours of your time and get the right equipment for your plant, talk to a Nutting representative first, for all your floor truck needs!

Nutting makes over 1000 products, here are just 16 of them



For appliances and finished products



Wagon trucks up to 10,000 lbs. capacity



All types of dollies for boxes & cases



For sub-floor & overhead drag lines

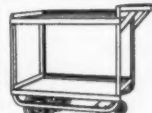


Trailers — up to 7,000 lbs. capacity



CASTERS — all types

WHEELS — demountable rubber tired, solid rubber, plastic & metal



Shelf and tray trucks



2 wheelers for freight



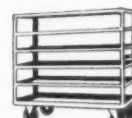
Steel & aluminum frames for cases & cartons



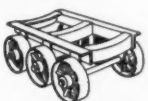
Drag line trucks & trailers for palletless handling



Non-tilt platforms — Wood & steel frames



Shelf trucks for sub-assemblies



Dollies for cylindrical & odd shaped items



Triform & box trucks for packages & bundles



"Auto-Load" barrel & drum trucks



Tilt style platforms — Wood & steel frames

Dollar for dollar, feature for feature Nutting is your best floor truck buy. Write for your free copy of new Junior Catalog 59G.

# Nutting



TRUCK AND  
CASTER COMPANY  
Faribault, Minnesota

NUTTING TRUCK & CASTER COMPANY  
104 Division Street • Faribault, Minnesota  
Please send copy of Junior Catalog 59G.

NAME \_\_\_\_\_  
COMPANY NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

Circle 99 on Reader Service Card





## ***DUO-FAST*** pneumatic staple nailing cuts crating labor costs 40%

Conclusive proof that DUO-FAST heavy-duty staples out-hold equivalent size nails can be seen every day in the shipping department of a Cleveland manufacturer. This company produces portable welders, generators and other heavy equipment. The crates must be sturdy and securely fastened together.

The powerful DUO-FAST Staple Nailers, which replaced manual nailing, drive tight-holding DUO-FAST Staples to give this company a stronger crate . . . plus a 40% saving in the labor required to build it.

► **Find out today** how DUO-FAST can save you time on crating, expendable skids and other industrial packaging problems. Ask for Bulletin FT-17.

FASTENER CORPORATION, 3700-A River Road, Franklin Park, Illinois

Staplers  
Tackers  
Staples

Everything you need for tacking, stapling and nailing.

Circle 47 on Reader Service Card

## **COST CUTTING IDEAS**

### ***Bottling Plant Triples Carton Sealer Output***

Output tripled for the carton-sealer compressors at the Pabst Brewing Co. Bottling Plant, Peoria, when they installed electric clutch-pulley drives on conveyor motor



shafts. Each conversion took less than an hour. The clutch-pulley slips right into place without machining.

Pabst launched a plant-wide conveyor automation program. Ten cartons a minute was the limit of each compressor. Now, it's 30 cartons a minute.

The compressors are horizontal conveyors on to which roll newly glued cartons. Overhead rollers hold the carton flaps in place while the glue sets. The conveyors run on-off, not continuously, to keep each carton under pressure as long as possible. Formerly, a conveyor drive motor had to start and stop each time a carton was fed. Now each compression conveyor drive motor runs continuously with no danger of overheating. —Warner Electric Brake & Clutch Co.

Circle 264 on Reader Service Card

### ***Scrap Handling Costs Saved***

They replaced oil drums used as scrap containers with self-dumping hoppers at the Hopewell (N.J.) Division of Rockwell Mfg. Co. The result: they halved their scrap metal handling costs, improved safety.

The company makes service cocks, liquid meters, meter registers, must segregate steel and brass scrap. Scrap collection used to require 6 to 8 drums for steel scrap,

Continued on page 44

# New Concept in Storage Rack Design?

## *Custom components tailored to users needs*

No two storage rack user's requirements are exactly the same. Yet, most users have to buy what is available—whether it exactly meets their needs or not. In many cases, users pay too much for the racks they buy just because they *have no choice*.

*Why is this?* Here's why. Every rack manufacturer offers a rack or storage system he considers to be the best *compromise* of all the factors involved in the design and manufacture of rack components. Mass production requires a high degree of standardization. In standardizing on one or two sections for load carrying stringers (beams), end frames and uprights, the rack manufacturer offers little choice to the user.

What does this mean to you? It could mean two things:

1. You pay for more rack (strength) than you actually need, or
2. You may have to accept a beefed-up version of a lighter rack.  
In either case, you are not getting *exactly* what you need.

### FAS-LOK CUSTOM COMPONENTS GIVE YOU THE CHOICE

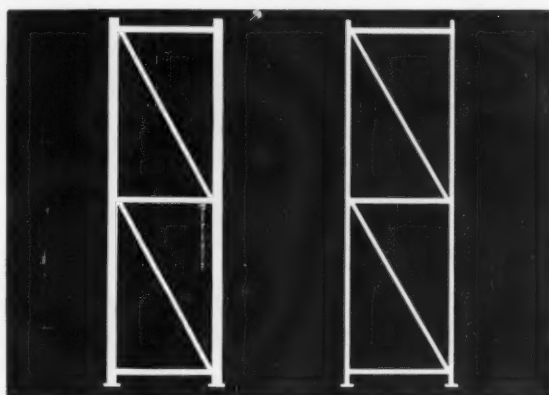
FAS-LOK Racks offer you something that has never been available to you before in a "stock" rack: A single rack or an entire storage system *exactly* matched to your requirements.



FAS-LOK load carrying stringers are structural steel channels. Available in 5 sizes as shown.

Here's how: FAS-LOK Racks may be made up using any one of 5 steel channel stringer sections, end frames and uprights to give you the strength required for your loads. In this way, you can buy racks with the capacity (and overload margin) you need—no more and no less. This is reflected in the price you pay for the FAS-LOK Rack you get. In short—FAS-LOK Racks are custom engineered at very competitive stock rack prices.

Here's another advantage: Assume that you have minimum floor area for a rack that must carry heavy loads. By selecting the larger stringer section, a minimum number of end frames would be required, which would allow you to store more in a smaller area.



End Frame uprights are structural steel channels. Frame at left, with 4" channels has capacity of 32,000 lbs.; 2" channel frame at right has 12,000 lb. capacity. Safety factor: 3 to 1.

### TWO-PIECE DESIGN FOR FAST ERECTION

FAS-LOK Racks are assembled from two basic parts—End Frames and Horizontal Stringers. Hookplates at each end of horizontal members have tapered ears which fit slots of the upright (inset). Assembly is simple: Ears are set into the wedge-shaped slots (punched in 3" centers) and a tap on horizontal stringer drives ears down, seating them securely in a wedging action to produce a rock-solid rack.



### COMPONENTS TO FIT YOUR NEEDS

Horizontal Stringers are available in lengths up to 20 ft; End Frames in depths from 2'0" to 5'0", and heights from 5' to 22'6" in 2'6" increments.

No bolts, no tools. Notched end plate locks with holes in upright.



Write for illustrated catalog, specifications and selection guide.

**CHICAGO TRAMRAIL DIVISION**  
Conco Engineering Works, Inc.  
1322 S. Kostner Ave. • Chicago 23, Illinois

Circle 30 on Reader Service Card







# ACME STEEL EQUIPMENT STRAPS CIRCLES AROUND ANY OTHER METHOD

In the slit coil field alone, dozens of producers are proving that Acme Steel automatic strapping systems are the most productive partner slitting equipment ever had. For instance, the new F4 Strapping Machine and Indexing Table (at left) let one man completely strap as many as 150 coils of *any width* per hour—all through push-button control. And once secured, coils are unitized just as efficiently with Acme Steel portable powered strapping tools.

Thanks to this rapid, non-stop flow, existing slitting equipment can run *continuously* at full capacity, eliminating the need for investing in additional slitting lines in many instances. No wonder Acme Steel automatic strapping equipment can pay off in 18 months!

No field has a monopoly on these savings. Acme Steel equipment is scoring unparalleled productivity gains in strapping giant hot coils, paper, textiles, products and packages of every description . . . in bundling and unitizing such products as lumber, building materials, bar stock, pipe and sheet metals.

Full facts on industry's most proven and productive strapping systems are as close as your phone. Call your Acme Idea Man for an evaluation of your particular operation. Or, write: Acme Steel Company, Dept. MECP-111, 135th Street & Perry Avenue, Chicago 27, Illinois.



**IDEA LEADER IN  
STRAPPING • STITCHING • FRAMING**

Circle 1 on Reader Service Card

# new!

## LOW COST, VERSATILE

# VAC-U-LIFTER

*multi handler*

Easy, QUICK one-man operation eliminates slings, chains or ropes! Can be fitted to the job, large or small, with powerful instantaneous grip... lifts up to 2,000 lbs.

Meets the approved safety requirements and features the exclusive QUICK CONNECT AUTO-LOK COUPLING.



ONLY

**\$69500**

**COMPLETE WITH 10" PAD**

(AS ILLUSTRATED)

**Auto-Lok Coupling permits the speedy attachment of:**

1. Various sizes and shapes of oval and round vacuum pads
2. Beams in variable lengths with adjustable pads
3. The special self-contained 90° Powered Turnover Unit for those difficult inspection jobs and turning operations.

**VAC-U-LIFT CO.**

Salem, Illinois

## FREE TRIAL

We are so sure you will be completely satisfied that the VAC-U-LIFTER will save you time and costs with your handling problems that we offer it to you on a 30-DAY FREE TRIAL basis in your plant!

If not completely satisfied, you may return the unit and we will even pay the freight!

**MAIL COUPON TODAY! - VAC-U-LIFT CO., Salem, Illinois**

☐ Mail more information

Name .....

☐ Have Representative call

Company .....

☐ Ship VAC-U-LIFTER unit for 30-day free trial — freight prepaid

Address .....

City ..... State .....

VL-272

Circle 134 on Reader Service Card

## COST CUTTING IDEAS

and 50 drums for brass. Four men manually emptied the drums into a semitrailer in the yard.

Now, two men do the job with the self-dumping hoppers of  $\frac{1}{4}$  cu. yd. capacity. Each hopper holds 3 to 4 drum loads. Dumping is safer and faster with the hoppers.

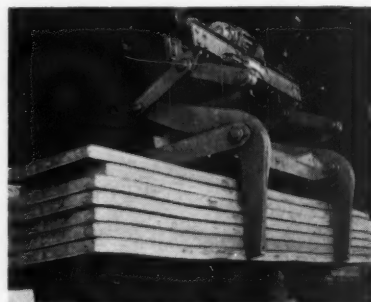


The operator only has to trip a release and the hopper automatically dumps its load, rocks back, and locks upright.—Roura Iron Works, Inc.

Circle 265 on Reader Service Card

## Tongs Move 240,000 Tons of Slabs Monthly

They lift hot or cold steel slabs in up to 120,000-lb. loads quickly and safely with motorized tongs at the Weirton Steel Co. Plant at Weirton, W. Va. Weirton Steel is a division of National Steel Corp.



The spreader tongs will lift from one to seven slabs, in a pile up to 50 inches deep, 20 to 49 inches wide.

Weirton says that the tongs have it all over the old method of wrapping chains around the slabs. The tongs save time, pile slabs higher, and make better use of storage space.—Materials Handling Div., Heppenstall Co.

Circle 266 on Reader Service Card

MATERIAL HANDLING ENGINEERING



## Huge Tractor Shovel serves U.S. Steel

The huge 6-yard Michigan Tractor Shovel you see above has replaced two 1½ yd diesel locomotive cranes formerly used to load both coke and coal at U. S. Steel's Fairfield, Alabama, Coke & Chemical Works (Tennessee Coal & Iron Division). In addition, the powerful 335 hp unit has freed a part-time switcher engine . . . and has eliminated a twice-a-week need to move railroad tracks closer to coke stockpiles so cranes could operate.

### Hauls coke 350 ft

With its rubber-tired mobility, the Model 375A Michigan economically transports coke as far as 350 ft one-way. Dumps are usually made into a rail-mounted rescreening hopper which, in turn, processes the coke for shipping . . . though, when coke fines do not have to be screened, the Michigan loads directly from pile to gondolas (shown above). The Tractor Shovel's long reach and high (10'3") dump clearance easily fills even the far sides of the big gondolas to heaped capacity.

Company officials report the Michigan has considerably speeded up coke handling operations because now railroad tracks can be left in place and railroad cars loaded out of two coke stockpiles.

As soon as the Michigan completes loading of gondolas at one location, it simply drives over to the other stockpile (600 feet away) and continues loading there. Operating back and forth between the two, the 6-yard Michigan loads *an average of 3,000 tons of coke every 16-hour day*. It *has* loaded up to 54 cars (50 tons each) in one 8-hr shift, a total of 2,700 tons.

### Uses 12-yd bucket to load coal (yes, 12 yds!)

Besides coke, the rubber-tired Michigan is called on to load coal into gondolas, and occasionally to charge furnace hoppers. For these jobs, the 335 hp unit with its optional 12 yard bucket moves 8½ tons of coal at a time . . . seven passes fill a 60 ton gondola car.

### Big production frees Michigan for other assignments

Because of its mobility and power, company officials report the Michigan not only handles all normal coke and coal loading operations at the plant . . . but also finds time to perform other assignments that formerly required additional machines. For example, the rubber-tired unit regularly:

Grades and maintains plant roads.

Excavates and truck-loads bank-run clay material to clear and level for new stockpile areas.

Loads 20 ton trucks with accumulated rubbish (dirt, broken bricks, etc) . . . a one-day-a-week job at a central dump.

After two years and over 3,500 hours of operation, company officials report they are pleased with the 62,000 lb Michigan's performance. Original tires are still in excellent condition . . . were recapped once after 2500 hours of use . . . are expected to last "at least another 2500 hours."

If you have a material handling problem, it may pay you to investigate the complete line of Michigan Tractor Shovels. Your Michigan distributor will be happy to demonstrate any of nine models available—standard bucket sizes 16 cu ft to 6 cu yds (optional buckets to 12 cu yds)—write or call us collect for complete details.

Michigan is a registered trademark of

**CLARK EQUIPMENT COMPANY**  
Construction Machinery Division



2445 Pipestone Road  
Benton Harbor 43, Michigan  
In Canada:  
Canadian Clark, Ltd.  
St. Thomas, Ontario

Circle 32 on Reader Service Card

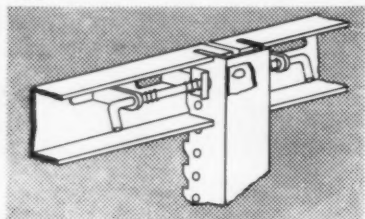




# PRODUCT NEWS

## Strong Storage Racks

Hi Line Instant Rack and Automatic Instant Rack feature a spring-loaded locking pin. The locking pin on Automatic Instant Rack is pre-loaded at the factory. You just release a latch when assembling the rack. Features of both types of rack include: 1 inch vertical adjustability; support of load beam on neutral axis

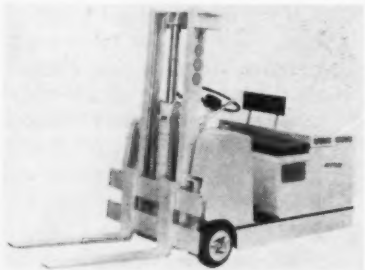


of beam; increased rigidity due to normal beam deflection in loaded position. A look-through window in the beam makes safety pin inspection easy. There is all-parent metal in both connecting pieces. Company says you'll have no wedging action in connection or removal. Assembly time is reduced to a minimum. Load shelf beam capacities to 8,000 lb. and frame capacities to 40,000 lb. per frame is standard.

Warehouse Storage Systems Co.,  
Div. of Hatfield Industries, Inc.  
Circle 401 on Reader Service Card

## Hydraulic Drive Lift Truck

The new Hustler Hyde-Lec lift truck offers complete hydraulic oper-



ation. Motive power comes from a motor-driven variable displacement pump combined with a constant displacement pump, gearbox, and hydraulic motor in each wheel. This ar-

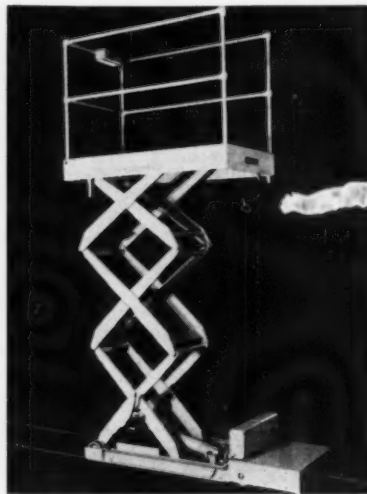
angement gives positive power at all speeds, from creep to 12 m.p.h. Manufacturer says that the hydraulic drive eliminates motor surging, saves the battery. Another claim for the new model is that it offers fewer component parts and less maintenance. The Hyde-Lec series offers models up to 6000 lb. Illustration shows a 4000-lb. capacity unit.

The Heifred Corporation

Circle 402 on Reader Service Card

## Works in Narrowest Aisles

Scissor-lift platform on track gives order picker access to high shelves from narrowest aisles. Platform can be 24 to 48 in. wide. Operator can work shelves on both sides. He controls ascent, descent, sideways travel



with pushbuttons on platform rail. Platform height, maximum, 96 in., minimum 16 in. Capacity 750 lb. Powered by electric motor.

Southworth Machine Co.  
Circle 403 on Reader Service Card

## Platform-Controlled Stockpicker

Operator can quickly, safely pick stock from racks 18 ft. above floor, using new electric stockpicking truck. Picker riding high on platform has full control of truck travel, steering,

braking, raising and lowering platform. Twin-wheel differential drive



makes steering easy. Operates in narrow aisle. Capacity 1,500 to 3,000 lb., lift to 128 in. At your option: forks instead of platform.

Lift Trucks Inc.

Circle 404 on Reader Service Card

## New 12-Ton Crane

A new truck-mounted crane has 12-ton capacity. Boom telescopes hydraulically from 16 to 40 ft. under load. Turntable winch, boom oper-



ator's station, and counterweight can rotate 360° continuously. All sorts of attachments available—clam shells, jib booms, hydraulic hammers, snow scoops. Also comes in 6-ton capacity. Cranes can be mounted on any suitable truck chassis; made, however, for a 1066CX Crane Carrier chassis.

Grove Crane Sales Co.

Circle 405 on Reader Service Card

Continued on page 48

# NEW... HANDLES EXPENDABLE AND STANDARD PALLETS

## LOW WRIGHT LIFT

### Offers Major Material Handling Cost Reductions

Another WRIGHT-HIBBARD first, the LOW WRIGHT LIFT, opens the way for major material handling cost reductions. Expendable pallet advantages of low initial cost, low height, a means of shipping palletized loads at low cost, etc., are well known; but expensive powered equipment was required to handle these pallets. Now, the low cost LOW WRIGHT LIFT offers the solution to this major objection. The 2½" lowered height of the LOW WRIGHT LIFT will enter pallets with openings as little as 2-5/8". The 7/8" underclearance will clear the 1" finished bottom boards of standard pallets. The 6" raised height will lift both standard and expendable pallets. Twelve rollers provide easy pallet entry and exit, even over unchamfered boards. Gradual change from standard to expendable pallets is easy. Now, one low-cost piece of equipment is available to handle all your pallets.



**HLC  
Hand  
Lowering  
Control -**

... reduces operator movements. Operator need not stop truck, balance himself on one foot, and lower or raise load with the other foot. In an emergency, the HLC permits load to be dropped quickly to avoid collisions, "run-aways", or injury to the operator. The effectiveness and quality of the pump with HLC has been proven on the standard WRIGHT LIFT.

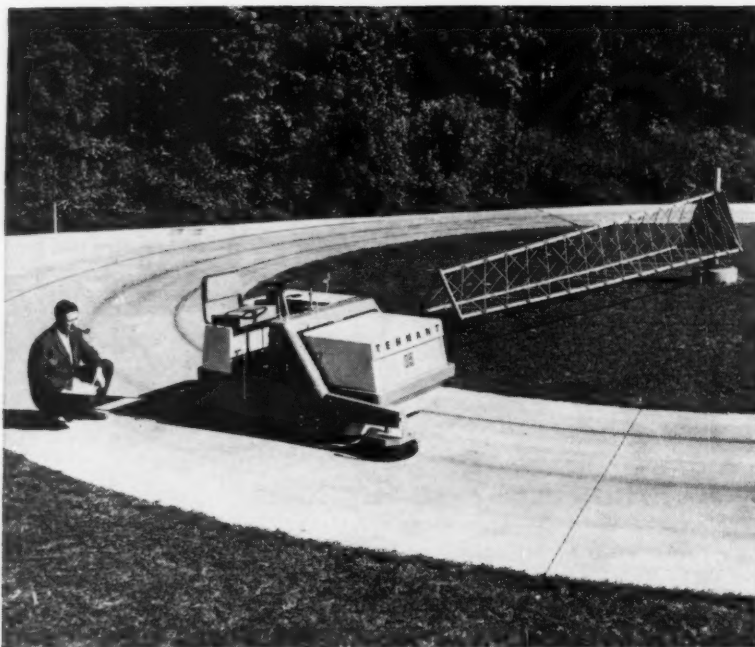
The LOW WRIGHT LIFT is available in 3,000 and 4,500 lb. capacities.

For more cost-cutting ideas and information on the LOW WRIGHT LIFT, Circle No. 10 on the Reader Service Card. Our nearby exclusive dealer, with an interest in giving you service, will be happy to supply you with literature or a convincing free demonstration in your plant.

ONLY  
**2 1/2"**  
Lowered Height  
WITH  
7/8" Underclearance



**WRIGHT-HIBBARD  
INDUSTRIAL TRUCK CO.**  
(MANUFACTURERS OF INDUSTRIAL TRUCKS SINCE 1917)  
DIVISION OF *Genard* INDUSTRIES, INC.  
**HAMBURG, PENNA.**



NEW TENNANT 85 SWEEPER gets performance check on non-stop sweeping endurance test

## It takes a tough Tennant to ride this merry-go-round

Circling its test track day after day, this new TENNANT 85 Sweeper is confirming field results—that this is one of the *huskiest, most dependable sweepers* available to industry.

Such tests help explain why TENNANT is chosen world-wide for more critical sweeping jobs, we believe, than any other sweeper on the market.

**Riding 15° (27%) ramps** is another of the many tough tests that are standard for this unit. It sweeps a 53" path as ultra-clean on grades as on the level.

**Picks up on the run.** Removes litter, dirt and debris . . . everything from cans and pop bottles down to fine dust. Even draws dirt from many cracks, crevices.

**Extra rugged components** are given brutal tests—such as the 30,000 start-stops of the sweeper's powerful fan . . . equal to 20 years of normal operation!

**Built for tough jobs**, the TENNANT 85 is expressly *engineered to far higher performance standards* than is common.

Perhaps this is why a TENNANT often lasts 3 times longer than similar machines on the same sweeping job.

*May we prove this to you?*



SWEEPING 24 HOURS PER DAY, this new Tennant 88 Industrial Sweeper cleans a 53" path near potline in aluminum reduction plant. Machine has special abrasive dust protective features.

**NEW BULLETINS** give full details on the heavy-duty "85" and "88" Sweepers. Full of facts, photos showing why they stand up under round-the-clock work. Write today to G. H. Tennant Co., 707M North Lilac Drive, Minneapolis 22, Minnesota.



**HEAVY-DUTY  
POWER  
SWEEPERS**

INDUSTRY'S MOST COMPLETE

**FLOOR MAINTENANCE SYSTEMS**

Circle 129 on Reader Service Card

## PRODUCT NEWS

### Gas-Powered, Fits Narrow Aisles

Compact, maneuverable Handler fork truck lifts 1,500 lb. to 12 ft. Hydrostatic drive, no conventional



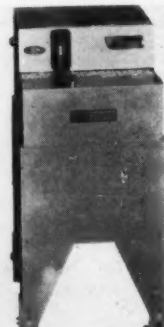
clutch, gear shift, or drive axle. Two speeds forward and back, lifting, brakes all controlled by single lever. Single column 3-stage mast, excellent visibility. Air-cooled 7-hp engine, push button starting.

Harlo Products Corp.

Circle 406 on Reader Service Card

### Checkweigher Is Compact

Do your checkweighing in minimum space with Model 1205-S, new compact Selectrol automatic high



speed type. Dimensions: 20 inches deep, 22 inches long, and adjustable height of 35 to 40 inches. It automatically weighs, classifies, and separates packages by correct weight, overweight, and underweight. Speeds up to 200 a minute. Standard models will weigh packages up to 12 ounces. Optional accessories: intake conveyor belts, discharge section with segregating gates, gravity feed, recorders, counters, and visual and audible signalling devices.

The Exact Weight Scale Co.

Circle 407 on Reader Service Card

Continued on page 50

MATERIAL HANDLING ENGINEERING





## COFFEE BREAK

It's an American institution, argued pro and con by businessmen, educators, labor unions and secretarial pools. Few argue with the coffee—it's the length of the break that affects productivity and profits.

For companies using industrial trucks, Hyster has a possible answer: make 'em want to stay on the truck!

Industrial designer Henry Dreyfuss and his staff spent hundreds of hours designing a lift-truck seat, for example, that is just right for the operator. Not

too hard, not too soft. Leg-room is another key to comfort. Whether the operator is five-foot-four or six-foot-four, he finds the controls perfectly located for easy, safe operation.

Take a look at pedals, steering wheel, load control levers. These trucks have been built by people who know the problems of the men who use them. We call it "human engineering." You'll call it profits. This is the line that sets the engineering pace for all lift trucks.

**INDUSTRIAL TRUCK DIVISION**—Lift trucks and attachments, mobile cranes, straddle carriers  
**TRACTOR EQUIPMENT DIVISION**—Construction and logging equipment; Heavy-duty trailers  
**INTERNATIONAL DIVISION**—Overseas truck and tractor manufacturing, sales and service

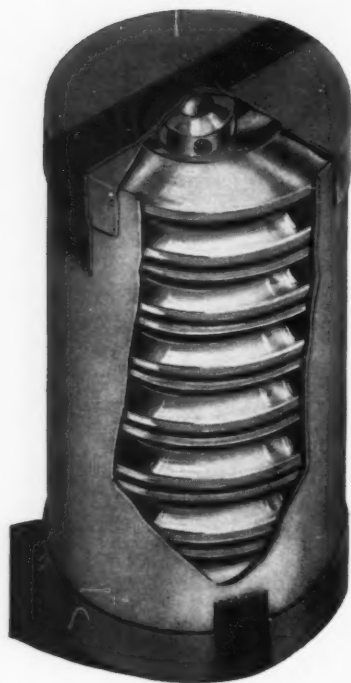
Manufactured in: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill.  
 Australia • Brazil • England • France • The Netherlands • Scotland • Republic of South Africa



**HYSTER COMPANY**

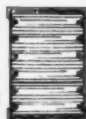
**INDUSTRIAL TRUCK DIVISION**  
 P. O. Box 847 • Danville, Illinois

Circle 63 on Reader Service Card

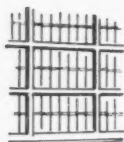


**pulleys**  
(for example)

**pack well..**



Neat as a stack of coins...  
all the time! Snug fit cuts  
packaging costs... makes  
container even stronger.



**stack well...**

Costly shelf space is fully used... and product  
protection remains perfect! Container diameters  
show size of product at a glance.



**ship well...**

No repacking! Easily handled! Strong, spirally  
wound wall construction can "take"  
rough treatment.

**in Cleveland Containers**



Pulleys to projectiles, there are many different  
kinds of products that can be completely handled  
in Cleveland containers at low cost! It is very  
possible we may have a good solution to some of  
your material handling problems. Write our near-  
est office to learn if we can help you.

## THE CLEVELAND CONTAINER COMPANY

**Plants and  
Sales Offices:**  
Cleveland  
Chicago  
Memphis  
Dallas  
Los Angeles  
Plymouth, Wis.  
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6201 BARBERTON AVE. • CLEVELAND 2, OHIO

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS  
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED

Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

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New York City  
West Hartford  
Rochester, N. Y.  
Washington, D. C.

Abrasive  
Division  
at Cleveland

Circle 22 on Reader Service Card

## PRODUCT NEWS

### Automatic Drum Handler

Barrelifter fits end of any fork  
lift, attaches or removed in seconds.  
Completely automatic drum pickup



and setdown. Only 2 moving parts.  
Weights 40 lb., lifts 1,500 lb. Safe,  
fast, no manual handling, no lubri-  
cation.

Ironrite Inc.

Circle 408 on Reader Service Card

### Lift Truck Handles 46,000 Lb. Loads

Latest addition to the company's  
pneumatic tire industrial truck line  
is the Challenger 460A. Rated at



46,000 lb. at a 48" load center. Ideal  
for work in the steel, pipe, concrete,  
logging, and heavy construction in-  
dustries. Company says this is not  
a beefed-up version of a smaller unit.  
The wheel base has been lengthened,  
and the truck has a hydraulic system  
designed to handle the increased lift-  
ing capacity. Two main features: full  
time, full flow oil filter, and a dry  
type air cleaner. Choice of 2 power  
plants: a Continental 6-cylinder gaso-  
line engine, rated at 153 horsepower  
at 2,400 R.P.M. or a Continental  
Diesel engine rated at 140 horse-  
power at 2,400 R.P.M.

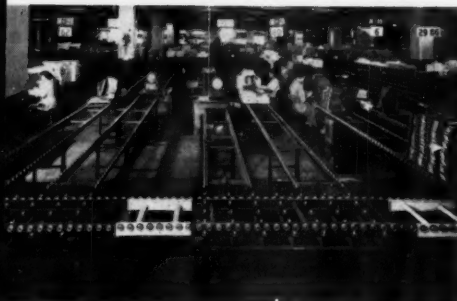
Hyster Co.

Circle 409 on Reader Service Card

Continued on page 52

MATERIAL HANDLING ENGINEERING

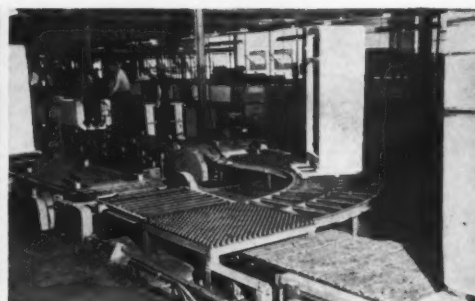
# CUT YOUR HANDLING COSTS



Single-row wheel conveyors as used in department store marking rooms



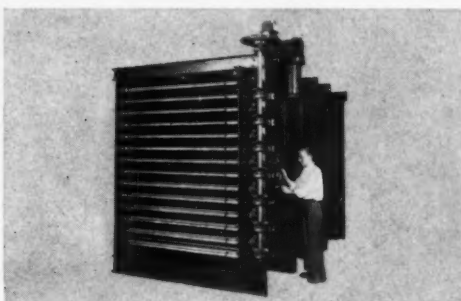
Powered belt conveyor. Horizontal and inclined with rubber, canvas or wire mesh belts



Apron conveyor assembly lines, ball-transfer switching station, in major appliance plant



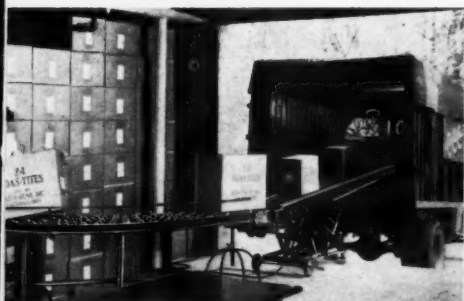
Overhead cable and roller conveyors, as used in wholesale drug warehouse for order picking



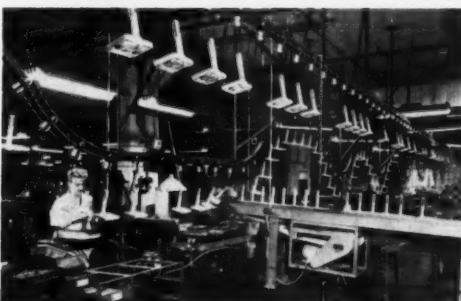
Automation. Special sheet feeder receives, stores and automatically loads and unloads curing press



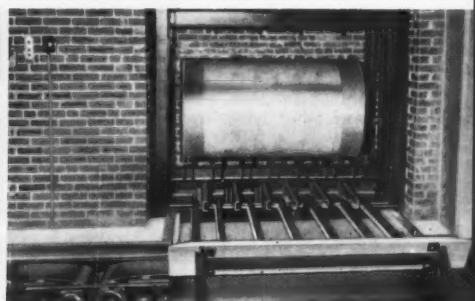
Up-enders, down-enders and special units are easily integrated into standardized conveyor systems



Portable wheel, belt conveyors: versatile in warehouses; shipping, receiving docks; stock rooms, etc.



Trolley carries light to medium weight loads, up, down, around all operations, at convenient heights



Automatic reciprocating hoist, belt conveyors handle paper rolls between floors in publishing plant

## WITH BUSCHMAN CONVEYORS ENGINEERED FOR ANY NEED IN ANY INDUSTRY

Buschman is your most logical source for a complete line of materials handling equipment, because they offer exceptional basic patent features and experience-engineering. From portable in-stock gravity conveyors to their famed Bush-Lock powered cable units, the Buschman line effects the greatest economy of space and handling costs in *any* situation. Here are a few typical applications that suggest how Buschman can serve *you*. The E. W. Buschman Company, 1450 Clifton Avenue, Cincinnati 32, Ohio.

Write for information on Buschman powered systems and in-stock gravity units for your use.

**Buschman**  
CONVEYORS

Complete Conveyor Systems for all industries — Engineered, Manufactured, Installed.  
Representatives in Principal Cities. See Yellow Pages.

373

Circle 12 on Reader Service Card



# Automatic Order Filling Systems that are delivering

## Outstanding Performance



Part of the Jerseymaid of California sub-zero automated distribution center, which features a high-speed automatic order filling system developed by Mathews Engineers.



Whatever the requirement might be in automatic warehousing, plant operating people responsible for the selection of the RIGHT conveying system to solve their problem are looking beyond the price — investigating quality and performance.

Mathews Engineers are giving these people a complete conveyer service — from the first proposal through spectacular warehouse installation — and equipment that is delivering outstanding performance.

Write for Bulletin No. OF-60.



**MATHEWS CONVEYER COMPANY**  
MAIN OFFICE AND EASTERN FACTORY — ELLWOOD CITY, PA.  
WESTERN DIVISION  
**MATHEWS CONVEYER COMPANY WEST COAST**  
OFFICES—SAN CARLOS, CALIF. — FACTORY—CHICO, CALIF.  
CANADIAN DIVISION  
**MATHEWS CONVEYER COMPANY, LTD.**  
OFFICES AND FACTORY—PORT HOPE, ONTARIO

# MATHEWS

Circle 88 on Reader Service Card

## PRODUCT NEWS

### Full Length Rubber Hinge

Result of years of experimenting, Durador combines best features of rigid rubber door and a flexible cur-



tain. Absorbs, rather than resists, impact. Full length flexible rubber hinge assures return to normal closure. Door is made of 3/4-inch marine plywood with 1/2-inch live rubber on the bottom half, 3/8-inch on the top half. Leading edge has 3/8-inch rubber protective layer. Almost no maintenance needed. Door works silently with no moving parts to wear or misalign.

Clark Door Co. Inc.

Circle 410 on Reader Service Card

### Rugged Barrel Truck

All-welded steel drum and barrel truck handles containers 23 to 48 inches high, straight side and bilge types, 18 inches diameter and more.



Capacity: 1,000 lb. Features: cycle-style handles; square steel main frame; adjustable spring tension chime hook; steel forged toes; 2-inch-diameter auxiliary steel wheels for rolling close to loads; roller bearing main wheels with demountable rubber tires.

Nutting Truck and Caster Co.

Circle 411 on Reader Service Card

Continued on page 54



## 25% greater capacity

Through Hough's continuing program of research, development and improvement, a new PAYLOADER tractor-shovel (Model H-30B) has been developed that is an even better machine than the original model introduced 18 months ago. Here are several points of special interest:

**More Capacity:** Standard 1¼-cu. yd. bucket provides 25% more capacity without sacrificing the H-30's exceptional stability and balance.

**More Safety, Less Maintenance:** The only loader in its class with boom arms positioned far ahead of operator. Simplified boom mechanism has 6 to 12 fewer pivot and grease points to maintain.

**More Power:** More hp per pound than comparable loaders. Torque converter properly proportions power between drive train and hydraulics.

**Better Braking:** The only loader with sealed, 4-wheel hydraulic brakes and "operator's choice" dual brake pedals. Exclusive axle design permits servicing of brakes without removing and exposing planetary hubs to dust and dirt.

**"Plus" Features:** Full power-shift transmission with no stopping for range shifts; positive oil cooling with separate oil-to-air radiator; closed, pressure-controlled hydraulic system; power-transfer differentials for best possible traction under any condition.

A Hough Distributor will demonstrate these easy operating, high production elements of the H-30B. Call him today or write for more data.

# HOUGH®



THE FRANK G. HOUGH CO.  
LIBERTYVILLE, ILLINOIS  
SUBSIDIARY - INTERNATIONAL HARVESTER COMPANY



HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER, PAYLOMATIC and PAY are registered trademark names of The Frank G. Hough Co.

## Full of Big-Loader Features!

Four-wheel drive

Power-shift and power-steer

Torque-converter

Closed, pressure-controlled hydraulic system

Choice: gas or diesel engine;  
¾ to 2½ yd. buckets (SAE rated)

4-wheel, sealed hydraulic brakes

Planetary final drives

43° bucket breakout

Single cylinder bucket tilt

3 speeds: to 21 mph forward,  
to 25 mph reverse

Only rubber-tired loader available  
with patented Drott "4-in-1" bucket

### THE FRANK G. HOUGH CO.

731 Sunnyside Ave., Libertyville, Ill.

- ☐ Send complete data on H-30B PAYLOADER  
☐ Send data on other Models and Allied Equipment

Name

Title

Company

Street

City  State

11-A-1

## PRODUCT NEWS

### New Industrial Trucks

New from Ford are two series of industrial trucks, the basic units for a 4,000-lb. capacity fork lift truck, 10-, 12-, and 14-ft. backhoes, and loaders with 2,000-lb. lift capacity and the fast cycle time of 12 seconds for load-raise-dump-and-return. The "4000" series is powered with 172 cu. in. displacement engines adapt-

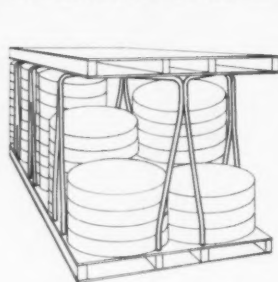
able for use as Diesels, or to burn gasoline or LPG. The "2000" series has either a 134-in. engine for gaso-



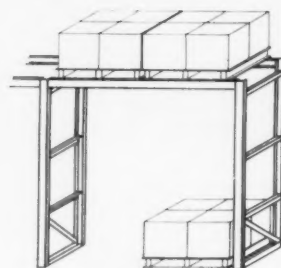
line or LPG, or a 144-in. Diesel.  
Tractor and Implement Div.,  
Ford Motor Co.

Circle 412 on Reader Service Card

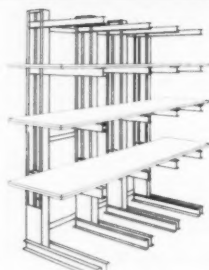
**WE HAVE ONE OF THE BROADEST LINES OF RACKS . . . SEE HI-LINE FIRST. IF YOU DON'T SEE YOUR RACK HERE CIRCLE READER SERVICE CARD NUMBER BELOW AD.**



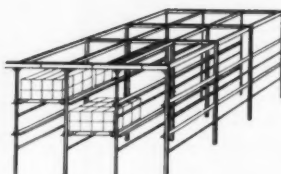
PIGGY BACK PALLET HARDWARE



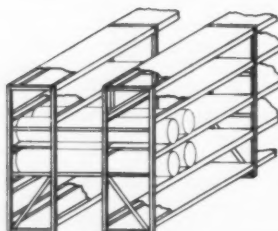
SINGLE TIER



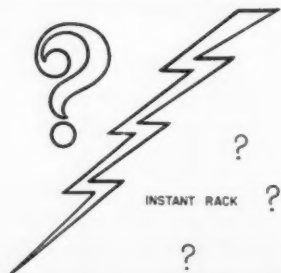
CANTILEVERED RACK



DRIVE THROUGH RACK



RUG RACK



INSTANT RACK



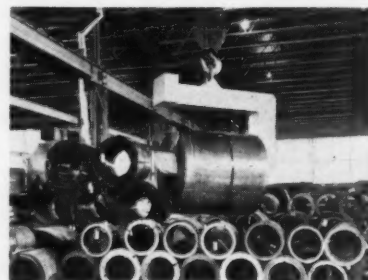
## Warehouse Storage Systems Co.

Division of Hatfield Industries, Inc.  
Hatfield, Pennsylvania

Circle 135 on Reader Service Card

### C-Hooks for Coils

Company's new C-Hooks for handling heavy, cumbersome strip and sheet coils come in 9 stock sizes. Capacities: 5,000 to 15,000 lb. Each has a special safety stand to cradle the hook when not in use. Used with an overhead crane, the crane operator inserts the hook into a coil with ease.



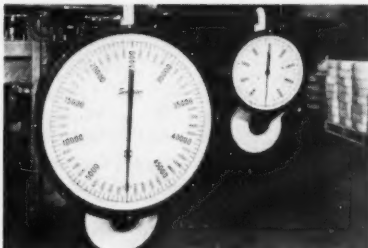
Company says this one man operation reduces labor costs and speeds handling.

Jarke Mfg. Co.

Circle 413 on Reader Service Card

### Crane Scales to 60,000 Lb.

You can get remote indicating crane scales as well as standard models in capacities ranging from



500 to 60,000 lb. Read the remote dial at eye level with the load as far away as 100 ft. All dials are in uniform increments, shielded by shatter resistant plastic. Safety feature: ultimate strength more than five times rated capacity. Scales feature minimum headroom loss.

Martin-Decker Corp.

Circle 414 on Reader Service Card

### Higher Battery Capacity

New type HY battery gives 85 ampere hours per positive plate, at six-hour rate. This is 18 percent more than regular high capacity model. Extra capacity requires less than 10 percent increase in cell height. Area dimensions are same as maker's Type HC batteries, but HY is 24 in. high without cover, 25 in. with cover.

C & D Batteries

Circle 415 on Reader Service Card

Continued on page 108





## STANDING GUARD FOR LIGHTS THAT NEVER FAIL

Standing guard at power stations is a natural for Whiting cranes. They're pulling this kind of duty throughout the land, every day. They help to maintain the uninterrupted service that sends billions of kilowatts to American Industry — keeps industrial plants humming, homes and streets lighted and safe.

The thirty ton crane above now safeguards maintenance at the Black Hills Power and Light Company's new gener-

ating plant at Rapid City, South Dakota.

For servicing a power station or speeding up materials handling in mills and factories, you'll find the right crane at Whiting for the job. We'd like to talk to you about giving your company a better lift. Write *Whiting Corporation, 15659 Lathrop Ave., Harvey, Illinois.* In Canada: *Whiting Corporation (Canada) Ltd., 350 Alexander Street, Welland, Ontario, Canada.*

Ask for bulletin: "How to Select An Overhead Traveling Crane."

See our catalog in Sweets



90 OF AMERICA'S "FIRST HUNDRED" CORPORATIONS ARE WHITING CUSTOMERS



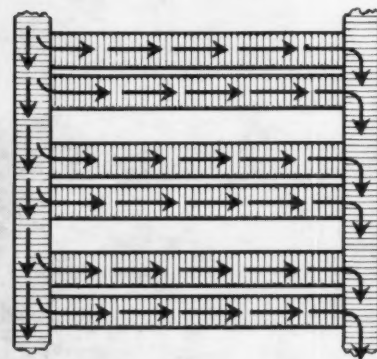
# WHITING

MANUFACTURERS OF CRANES; TRAMBEAM HANDLING SYSTEMS; PRESSUREGRIP; TRACKMOBILES; FOUNDRY, RAILROAD, AND SWENSON CHEMICAL PROCESSING EQUIPMENT

## 700° Torture...But Not One Roller Failure In 12 Years



How an Olson System Solved a Tough  
Storage and Handling Problem



Though seared by 700°F. radiation for a full sixteen hours daily, not one of the 11,000 rollers in this series of Olson Conveyors has ever failed during more than twelve years of continuous service at The Dow Chemical Co. plant in Freeport, Texas.

Consisting of over a half mile of roller storage racks, the system was designed to handle the storage of 700-pound drums of molten caustic soda while cooling. Drums are conveyed from the pouring point to the storage conveyors by means of an Olson Steel Slat Conveyor. Movable diverters switch the drums onto the roller conveyor lines which are at right angles to the slat conveyors, and slightly canted so the drums can roll into line by themselves.

After the sixteen-hour cooling period, the drums are switched to a second Olson Steel Slat Conveyor at the opposite side of the storage conveyors, and transported to a shipping dock.

Despite the years of daily torture, every roller in this system has continued to turn smoothly since installed in 1948. Other than occasional lubrication, the rollers have required virtually no maintenance—assuring maximum dependability on a vital production line where a single roller “freeze” could make everything stop cold.

Learn how an Olson System can help you cut handling costs and speed the flow of parts and materials during, between and after manufacturing operations in your own plant.

WRITE FOR NEW CATALOG 1000C

# OLSON CONVEYORS

**SAMUEL OLSON MFG. CO., Inc.**

DIVISION OF CHERRY-BURRELL CORPORATION  
2426 Bloomingdale Avenue, Chicago 47, Illinois

Circle 103 on Reader Service Card

MATERIAL HANDLING ENGINEERING

"But Crusher,  
everyone knows the  
**CLARK SHOCK ABSORBER DOOR**  
*can take it!*"



Won't rip, warp or come off the fastenings



**The Bumper takes the Shock—  
Not the Door**

**CLARK DOOR**  
COMPANY, INC. (since 1878)

514 Hunterdon St.  
Newark 8, N. J.

Not just an improved Impact Door—but a totally different concept! The Shock Absorber Door keeps traffic moving without slow-downs or bottlenecks. No costly "time-outs" for repair.

Flexibly suspended, this lightweight door opens and closes freely, either manually or when pushed by a truck. Exclusive Urethane-filled Bumpers absorb shocks that would wreck ordinary doors. Spring Retriever returns door unfailingly to closed position. Neoprene sealing at all edges assures tight, draft-free closure. Keeps wanted air IN—unwanted air OUT.

Surprisingly low in cost, the Shock Absorber Door comes in one complete, easy-to-install unit. Needs virtually no maintenance. Proven in the plant. Learn why so many Blue Chip companies, after ordering one door, are now reordering several more. See our insert in Sweet's Catalog, or, better still, write us today for full information.

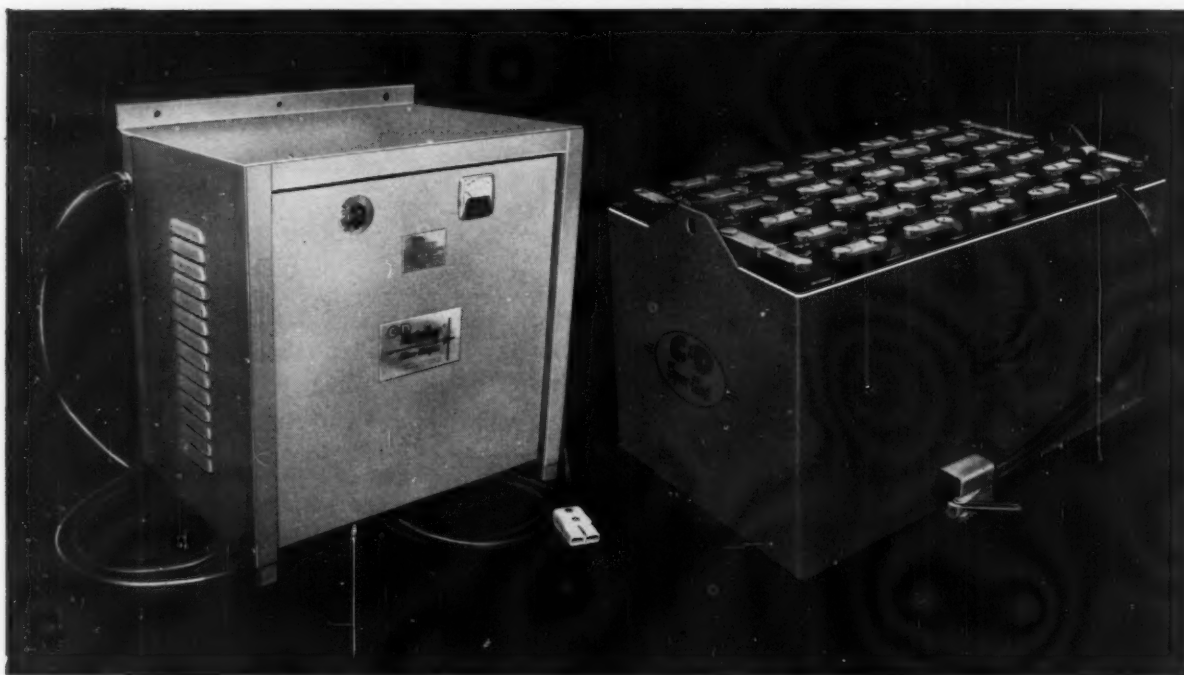


# ANNOUNCING OPERATION

NEW PROGRAM FEATURING BATTERY-CHARGER COMBINATION  
ASSURES MINIMUM BATTERY COSTS FOR 90 MONTHS

# 90

FROM C & D!



Now, with C & D's Operation 90, you get a written warranty for your C & D battery and *AutoReg* charger.

The battery is C & D's *Slyver-Clad*® with *Hi-Impac*\* cell covers and containers. *Slyver-Clad* Five-Fold insulation and retention virtually eliminates shedding as a determining factor in battery life. *Hi-Impac* cell containers and covers, made of a unique shock-resistant material capable of withstanding a minimum impact of 150 inch-pounds, are practically unbreakable. Thus C & D's warranty provides for their replacement free of charge during the life of the battery.

The Operation 90 program charger is an *AutoReg*® static rectifier charger that automatically provides the proper charge for the battery. The *AutoReg* is the most modern, efficient charger available and is virtually maintenance free.

In C & D's Operation 90 program, you get single source responsibility for battery, charger, and service.

Complete details are in a new booklet. Write for a copy today. Learn how C & D's Operation 90 program can provide you with greater productivity, reliability, and profit from your electric truck fleet.



**C & D BATTERIES**  
*of Conshohocken, Pa.*  
DIV THE ELECTRIC AUTOLITE CO.

Manufacturers of *Slyver-Clad*® Industrial Batteries • *PlastiCell*® and *PlastiCal*® Batteries for Communications, Control, and Auxiliary Power • Producers of *AutoReg*® Silicon Chargers and *AutoCal*® Charger-Battery Combinations

\*Trademark, C & D Batteries, Div. The Electric Autolite Co.

Circle 15 on Reader Service Card



## **MHE GUIDE TO WAREHOUSING**

### **How many warehouses and where?**

*New trends produce new answers*

**By E. W. WILLARD, Manager, Plant Location Surveys, The Austin Company**

A COUPLE OF YEARS AGO a southern candy manufacturer found its facilities had become hopelessly overcrowded. The company was in a hotly competitive market where ability to deliver goods quickly and on time was an absolute necessity. They thought a new manufacturing plant was the only answer to the space problem.

Thorough study of the situation disclosed, however, that manufacturing facilities were more than satisfactory. The real need was a new distribution system

centered on a new warehouse. Since no space was available adjacent to the existing plant in the downtown area, they built a new warehouse on the outskirts of the city. Though this arrangement was not quite as efficient as an adjacent warehouse would have been, the company was immediately able to improve deliveries and keep up with competition. Temporarily at least they had enough room for manufacturing, and basic operating costs declined.

This example points up a universal problem in man-

ufacturing today. Management is under continual pressure to reduce distribution costs because these costs rise inexorably. In particular ever-rising labor rates increase distribution costs. Often the problem is complicated by need for faster service, which in turn affects costs. Slow handling is inherently wasteful, since it ties up capital, facilities, and men. Moreover, poor service may result in fewer orders, and hence in inefficient use of expensive organizations geared to a high-volume operation.

Experience has proved that when you want to reduce distribution costs you get the best results with a three-pronged approach. A new warehouse, for example, will function most efficiently if original planning coordinates (1) paper work, (2) the physical details of material handling, and (3) the design of the building. This coordination prevents such typical headaches as trying to fit one particular material handling system into a building really made for another kind of material handling system. Very often too, economies can be effected during the construction of the building without sacrificing operating efficiency.

Effective location and operation of warehouses is an area of material handling which offers many possibilities for reducing distribution costs. In particular, potential savings occur in connection with distribution warehouses of manufacturers, since these usually present the biggest problems, and commensurately offer the greatest opportunities for saving time and money. The basic questions then are: *How many warehouses should a manufacturer have? How big should they be? Where should they be located?*

Since every company's problems and objectives are different, each case must be solved separately. Generalizations are difficult due to the infinitely variable factors encountered. For example, a given company will not be aided by knowing that the number of all distribution warehouses is increasing or decreasing — if indeed a tendency either way can be discerned. At the planning stage, however, it is important to recognize and evaluate current trends in respect to warehouse location, as shown by the experiences of specific companies.

**Customers a factor.** A typical example is an ethical drug concern, which must have products immediately available at all times for customers in all big cities. This company has found it necessary to maintain warehouses close to all major population centers.

Another drug producer faces somewhat the same problem with a slightly different twist. Hospitals are their principal customers for certain highly competitive products. Hospitals have neither space nor inclination to keep large stocks, but naturally they require fast service. To supply such service on a competitive level this company also maintains warehouses in large population centers, and finds that the trend is toward even more such depots.

Metropolitan warehouses exemplify the fact that service frequently overrides other factors in the distribution process. Service is often more important than the actual costs of operating warehouses. If you have to give fast delivery to hold customers, other considerations become secondary — or ultimately there will be no customers.

**Influence of transport facilities.** The grocery business also depends on metropolitan warehouses. Supermarkets and large chain organizations are tending to supply local outlets themselves, instead of working through wholesalers as formerly, but the warehouse function remains essentially the same. In such cases incoming rail facilities become unusually important as factors in locating warehouses.

For regional or national distribution, service and transportation are generally the two most important considerations and will determine the most favorable warehouse locations, warehouse operating costs being secondary. However, two recent cases illustrate how specific problems may reverse such an axiom:

One is the experience of a company with national distribution. They considered moving a warehouse from one west coast city to another, because freight charges from the existing warehouse to distributors were relatively high. They knew warehouse operating costs would be higher in the second city, but were confident that savings in freight, gained by being closer to the center of distribution, would outbalance higher operating costs.

Upon investigation it was found, however, that the warehouse operating costs in the second city were so much higher that they more than wiped out the freight saving.

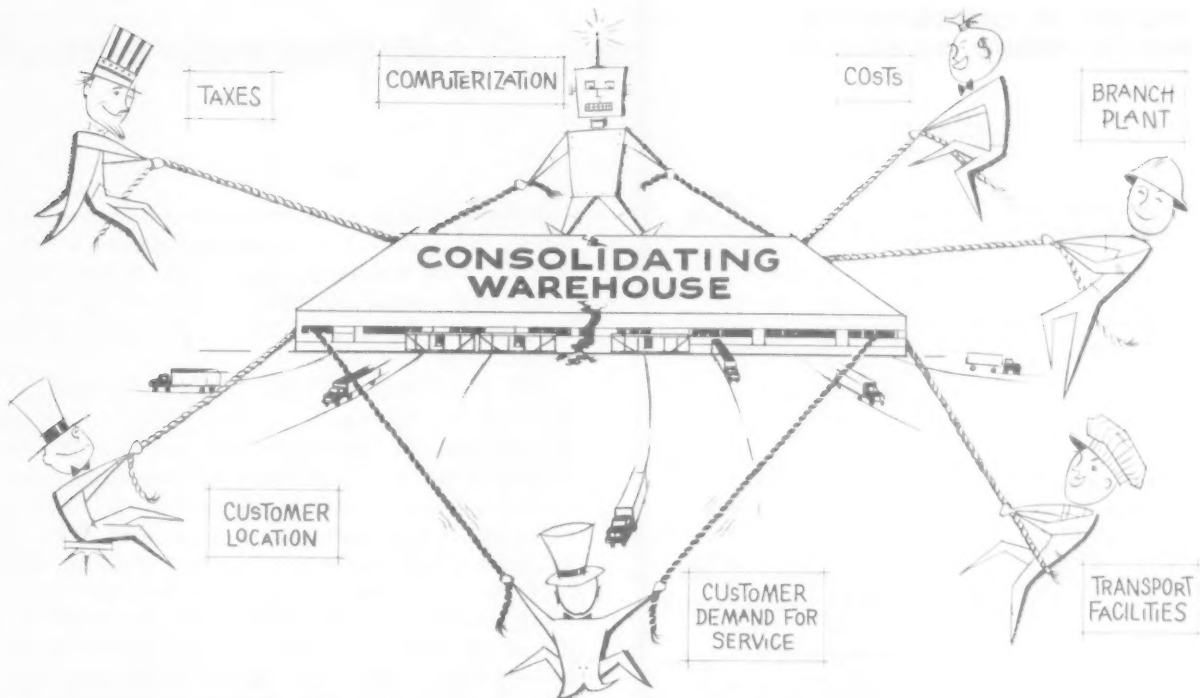
A similar situation which took a different turn was the recent case of a company which had to choose between locating a warehouse in a large northern city, or in a small southern city. Half the distribution was to be handled by truck, 35 percent by express, 14 percent by parcel post, and 1 percent by air. Transportation was unquestionably better from the northern city, although costs were not significantly different. The southern town was finally chosen — the lower costs of operating there more than outweighed the transportation advantages in the north.

**Freight-rate factors.** In-transit freight rates are an increasingly important consideration in locating warehouses. Historically this type of rate has been of basic importance to such industries as milling and steel fabricating. But these rates can also be used advantageously in warehousing and distributing.

An example is a manufacturer who produces a large variety of bulky machinery in many scattered plants. Few of his dealers can handle a carload of one type of equipment, but they could take carloads of assorted equipment. The solution is to ship carloads of equipment to strategically located warehouses at which carloads of mixed equipment are assembled and dispatched to the dealers. Although in some cases the goods travel more miles, the application of in-transit rates makes this an economical procedure.

**Advantages from size.** A number of advantages have been realized by Bobbie Brooks, Inc., a garment manufacturer, at their new distribution center in Cleveland. This huge building represents both a consolidation of several smaller warehouses, and expansion to keep up with rapid growth. The distribution center receives Bobbie Brooks garments from manufacturing plants situated in smaller cities to the south of Cleveland. Filling orders from the distribution





**MANY CONFLICTING FORCES** and trends influence the number, size and location of warehouses.

center is more profitable than to supply customers directly from the manufacturing plants. At the same time the company realizes the important competitive advantage of manufacturing costs lower than they would be in any large city. Costs are also held down by bringing the garments to Cleveland in the company's own trucks.

Because the warehouse is large and centralized it can use computers to attain certain efficiencies that would not be feasible otherwise. Computers tell in advance which orders can be filled. Picking is not started until the order can be completed. This one-time-only handling greatly reduces costs, and also cuts processing time, so the one distribution center can ship many more garments.

**Branch plant warehouses.** When a company's manufactured products are heavy or bulky it is frequently advantageous to put warehousing facilities in branch plants. Among the companies following such a policy is the Standard Register Company, whose products are so heavy that frequent handling would be prohibitively expensive. It is cheaper to provide warehouse space in a branch plant and to ship directly to customers, instead of setting up separate warehouses away from the factories.

**Taxes, special costs.** Special costs, such as inventory taxes, can sometimes be surprisingly important when a warehouse location is being chosen. In many instances warehouses are located over the line in another state from the area being served, simply to escape high inventory taxes in the service area.

**Principles and trends.** In the light of these instances and numerous others, it is possible to discern a few broad trends that are apparent in warehouse location policy:

1. Counter to the continuing trend for manufacturing plants to seek favorable locations in medium-size communities, new warehouses are predominantly located in metropolitan areas, because this usually minimizes the cost of the final, small lot distribution.
2. Both transportation costs and the ability to render better service are more important, in determining warehouse location, than the costs of operating the warehouse.
3. There is an increasing use of warehouses for consolidating shipments, both to improve service and to reduce costs.
4. The use of computers in warehouses is increasing. Computers tend to encourage bigger warehouses.
5. In some industries branch plants are taking over the functions of warehouses. Since more and more such plants are being decentralized in smaller communities, this trend runs counter to warehouse location in metropolitan areas.
6. Special taxes, such as inventory or "right-to-do-business" taxes, are often compelling reasons for choosing one location over another.

Despite these marked trends, there are always exceptions, and each warehousing and distribution problem has its individual peculiarities. Experience, careful planning, and the help of competent specialists are still the best bases for reaching wise decisions. ♦

## Ways of classifying warehouse systems

BY	CLASSES OR DESCRIPTION
USE OF MANPOWER & MACHINES	<b>Manual</b> Mechanical Semi-Automatic Automatic
STORAGE LOCATION METHOD	<b>Bin</b> —products of given kind always stored in same place and together <b>Slot</b> —product stored in place most convenient at time of receipt
TYPE OF IN-WAREHOUSE TRANSPORT	<b>Vehicular</b> —product moved on wheeled vehicles, such as hand-propelled floor trucks, powered industrial trucks, tractor-trailer trains, self-propelled cranes, etc. <b>Conveyorized</b> —product moved on roller, wheel, or belt conveyors, overhead chain or cable conveyors, etc. <b>Hybrid</b> —Towline conveyor systems; overhead bridge and monorail cranes and hoists, retrievers, stacker cranes, etc.
STORAGE PLACE ARRANGEMENT	<b>Popularity arrangement</b> —products grouped by rate of turnover <b>Code number or letters arrangement</b> , items arranged according to catalog or part number <b>Alphabetical by common name</b> <b>Arbitrary groupings</b>
TYPE OF STORAGE EQUIPMENT	<b>Stacks on floor</b> Palletized and stacked; in pallet containers, or on pallets with stacking frames, etc. Palletized and on racks—including conventional, drive-in, and drive-through racks Product on racks, bins, shelving; open type, or with shelf boxes or containers Live storage—on live racks; on free overhead conveyors; on powered overhead conveyors; in gravity chutes

**Many companies have hopefully invested big money in new warehouse facilities—only to find that the new set-up won't work. How can you avoid such errors?**



## What warehouse

WHEN YOU SET OUT to choose a new warehouse system, or to update one, your first big problem is this: there's nothing definite to choose from. As the table at left shows, words we use to describe systems really label only component methods or equipment making up *parts* of the system.

This means that every warehouse installation has to be created individually, by combining these methods and equipment types—you have ample latitude to develop a system exactly fitting your needs, but also a lot of opportunity for expensive mistakes.

Experts in warehouse management avoid failures. In viewing their methods it becomes apparent that they use an engineering approach—they check out every factor that can influence success of the system, just as you check out every source of load and stress in designing a bridge. Their methods consistently produce outstanding results. We have asked three to explain briefly their approach, the factors they consider, in setting up warehouse systems:

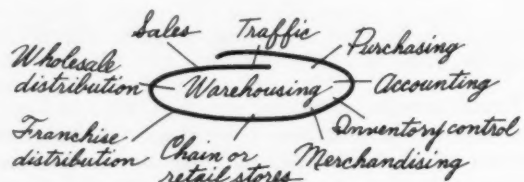
### START WITH DISTRIBUTION

**WILLIAM M. KORDSIEMON,**  
*William M. Kordsiemon & Associates*

*Bill Kordsiemon's successful warehouse installations can be found from coast to coast. He and his lieutenants are essentially line operating men, and they view the warehouse system as a segment of the business operation as a whole. This interview reflects that systems approach:*



DISTRIBUTION is the dynamic word to start with, rather than warehousing, in setting up a warehouse system. In our organization we look at the operation as a whole rather than write warehouse specifications. We can start only when everyone agrees to this approach. Then we think of the situation like this:



We determine what each activity on the wheel needs from the warehouse system. We learn all about prod-

## system should you use?

uct lines and patterns of distribution. We sit down with top management to find out what objectives the business has. Then you can design, on paper, a warehouse system to fulfill all needs. The warehouse itself comes late in the planning, the handling method in it comes last! If you plan so you get maximum efficiency with manual handling, then choose handling equipment which gives even better results, you generally come out best. At this stage you estimate cost—and you aim for a payout of 1, 2, or 3 years. In a typical instance a major warehouse has paid out in 1 year, with 80 percent reduction in direct labor.

Inventory management is a basic distribution problem. Generally we plan for a steep climb in volume—I will explain why in a moment. We provide for adding capacity at an economical cost. But we build into the system factors to keep inventory down, because this reduces size and investment. We do it in one warehouse by engineering the capacity to store for 30 days demand. This includes only reserve stock—forward stock, half of reserve, is regarded as sold. The stock ticket shows 30 days quantity, and if 2 tickets a month are required, that is the signal for increasing bin and order size. Floor personnel report outs daily, check 1/5 of the stock for lows each day (so whole stock is checked every week). This method keeps out-of-stock reports to less than 2 percent.

I mentioned steep climb in volume. We regard the warehouse as a dead cost, and try to make it earn more. This means finding more uses for it. For example, we put a mail order house into selling through retail outlets. This made a steep climb in volume, and more return.

The second dominant element in modern warehousing is data processing. Faster communications, faster processing alter the whole distribution climate. Important retailers can report sales of major products to the distribution warehouse at the end of each day's business; the distribution center can consolidate these reports and forward them to manufacturers. The effect on production schedules can be immediate—that is, production of the following day can reflect sales. We are on the threshold of this development.

Fast communications go hand in hand with the third element, fast transportation. Retailers can replace goods sold overnight. This drastically reduces inventory burden. We foresee large retail outlets set up so their average turnover period is 10 days or less—they will literally get their money for the goods before they have to pay, and thus can function without capital in inventory. We foresee distribution like this: retailers in one city—say Kansas City—will report their sales to a distribution point in Chicago by 9:30 P.M. The data processing machinery will produce orders sequenced according to a delivery route in Kansas City. The goods will then be packed into containers, trucked to the airport, lifted as containers into a plane, flown

to Kansas City, and delivered by truck, in the same containers before opening the next day.

Of course you have to take into account the nature of the business. You have to look at the product, at personalities involved. The people in different companies require different paces; plans must recognize this. So in planning we always prepare schedules in successive plateaus—phases of progress which may take a longer or a shorter time, depending on the product, the people, and business conditions.

### CONSIDER ALL FACTORS

**IRVING FOOTLIK,**  
*Irving M. Footlik & Associates*

*Though he works as a management consultant specializing in material handling, warehousing, and related fields, Irving Footlik has also had a distinguished career as writer and teacher. His books are standard texts; he has taught at the Illinois Institute of Technology and other schools.*



There are many factors to be considered in choosing a warehouse system.

First, the *product*: For example, tires differ from case goods, call for a different system. Even case goods differ. Some stack, others crush. This influences how high we stack, and what we handle the product with. If we use big trucks, even mast weight presents a crushing problem. For long objects, like pipe, we would consider handling from overhead.

The product also determines whether we are dealing with a true warehouse, or a distribution center. It is a distribution center if the commodity is in almost constant motion, a warehouse if there is dead storage for 30 days or more.

Our second factor is *distance*, internal and external. Can we place goods close to where we want them, to shorten carrying distance?

This hinges on warehouse location, the land, the position of entrances, exits, etc. In a long, narrow building a drag chain conveyor or tractor train ties our facilities together. If the building is short and broad we can enter and leave at the same point, using a lift truck or pallet system, to make use of round trips, having payload going in both directions.

The third factor is *the way goods are available*.



Differences in equipment used depend on whether goods come in carloads and are of the same type, or come in smaller quantities differing widely in type. A grocery warehouse may handle 4,000 items; an auto supply warehouse 28,000; a manufacturer's shipping warehouse only 26. At this point the terminology of *automatic*, *semi-automated*, and *manual* comes into play.

Fourth, we must consider *the frequency of cycling*—the speed at which we must move the commodity, and timing which affects how the goods must be moved. Frozen foods may require speed, seasonal goods involve timing. There is a big difference if tonnage is small and likely to be moved only once a month (like a specialized drug product), and when moves are daily and tonnage high (as with food). This brings up the subject of mislabeling of warehousing operations. We use the word *warehouse* indiscriminately, when we would be better off to speak of *terminals*, as in the trucking industry, *distribution centers*, as in the food industry, and then of places where merchandise merely stands between moves.

Modernday distribution involves less and less storage by the end user, and more frequent moves. As we encounter less storage we look for faster ways to move small quantities of goods. This development is fundamental to the selection of modern systems.

The fifth factor to observe is *obsolescence*. We must remember the constant change in trends, select equipment such that, if we are forced to obsolete it, we will not be hurt too much. Generally this means staying with standard equipment. Anyone installing a system should plan to get a payoff in 3 years or less. This way, you are in a position to keep up with developments.

## ANALYZE IN DETAIL

**R. ROY HEDBERG,**  
Management Systems, Inc.

*Many months ago an MHE editor was impressed by certain warehouses organized to achieve unusually high efficiency with simple, economical equipment. The editor later learned that these were planned by Management Systems, Inc. Here Roy Hedberg reveals the analysis of complex factors that produces the simplicity and efficiency noted:*



MANY FACTORS are involved in selecting a warehouse system, and the degree to which consideration must be given each is the important question. The most successful operations are those in which this question has been answered most satisfactorily.

**Customer service.** Obviously the system must permit fast, effective movement of goods from stock to the carrier's truck or railcar. If many rush orders must be handled daily, as contrasted with routine handling, the system must provide for both types of handling.

**Floor load availabilities, ceiling heights, shape and size of building, dock facilities.** In a new warehouse these elements can be patterned to suit. In an existing facility modifications must tie in with systems planning. Geographic area can affect requirements of dock facilities, particularly in northern climates. Analysis of traffic patterns and number and type of carriers must be made.

**Size and frequency of receipts, purchasing cycle.** How often is stock received? What are rail and truck unit loads? How large is an average shipment? Percent of small and large—number of cases per shipment. How can they best be moved quickly, efficiently to stock location?

**First-in-first-out requirements, deterioration factors, susceptibility to damage.** Does system require a strict "first-in-first-out" movement? What deterioration and damage considerations exist?

**Item identification, pre-stocking preparation.** Is stock marked when received with item number, size, etc.? If not, what modifications are necessary? Does stock require pre-preparation or packaging before locating? What movement patterns are desirable?

**Type of merchandise.** Sometimes not analyzed in sufficient detail: Weight, shape, possibility of unit-loads, hand-stack vs. palletization. Crushing factors, intricacies in smooth conveyor movement.

**Unit volume, expansion requirements.** Quantities, by item, of pallet loads, full cases, part lots, etc. Average order size. Percent shipped by parcel post, freight (rail or truck), express, etc. Proportion requiring re-packing, packing supplies needed. Provision for expansion.

**Quality of personnel available.** A factor often neglected: if new system requires personnel above average in intelligence, are they available in the area? To what degree must the system suit personnel available?

**Customer return problems, integration into basic system.** Very significant in some operations.

**Stock counting problems.** How often must counts be made? Will system facilitate economical counting?

**Office clerical handling.** How must or can system fit present clerical handling? Consideration of type of order document. Can paper work be revised to fit warehouse handling requirements? Sometimes necessary to overhaul clerical system to suit.

**Quality control.** The degree to which system requires checking of items filled and packed.

**Cost.** Consider all other elements, then make clear, definitive, realistic analysis of costs. They must be measured in terms of equipment, installation, and operation. Unfortunately operation is a factor to which wishful thinking is too often applied—it is measured only in terms of things hoped for. For example many new systems have emphasized improved order-picking, without giving realistic consideration to increased stock bin replenishment costs.

This listing of factors is not necessarily completely comprehensive, but in our experience we find that some of those most elemental are overlooked in selecting warehouse systems. ♦



ADMOS Inc.



## New excitement — the automatic warehouse

By **DICK DIETZ**, *associate editor*

**AUTOMATIC WAREHOUSING**—the glamor girl of material handling! She's the talk of the crowd—handling engineers, packaging engineers, companies exploring systems, and manufacturers providing them.

You should know all you can about automatic warehousing. It may look like your company never will need one. But don't bet on it. Moreover, how your

company handles may well be influenced by a supplier with automatic warehousing.

Biggest benefits of automatic warehousing: speedier service and big space saving. Biggest drawback: high cost. Many a company will wrestle itself raw trying to balance the benefits and drawback. You will be drawn into the controversy because you're the expert

on handling and packaging. So learn all you can about the trends, the great installations, the coming attractions, and the immense potential.

**The bright future.** Equipment manufacturers tingle all over when considering the future of automatic warehousing. They figure you engineers will recommend, and your companies will spend, \$1 billion for 5,000 warehouses by 1970. The manufacturers base these figures on a market study which noted that industry spent \$9 million on automatic equipment in more than 50 warehouses from 1956 to 1960.

The new spending is expected to save as much as \$250 million a year in direct labor costs alone by 1970.

Not all these warehouses will be fully automatic, nor can they be until more versatile equipment appears. But with the smell of that much money in the air, don't bet that smart manufacturers won't invent systems to enlarge considerably the possibilities of automatic warehousing.

The marketing report further says sales of warehouse handling equipment (mostly conveyors) will become an important part of the material handling industry, mushrooming from less than 0.5 percent of material handling sales in 1959 to nearly 12 percent in 1970. Annual sales of material handling equipment and controls for automatic warehousing will grow from nearly \$5 million today to \$300 million in 1970.

Other fields expected to warm themselves in the glow of automatic warehousing: electric and electronic controls design (represents up to 50 percent of the costs of automatic warehousing), data processing equipment (may total \$500 million in this decade), new warehouse construction (may grow from \$200 million in 1960 to \$700 million in 1970, a significant part of industrial construction).

**Get the terms straight.** An ideal automatic warehouse is one in which you put the order (on a punch card, tape, or some such) in a reader and automatically the filled orders arrive at the dock. Add automatic replenishment and you have an operatorless warehouse.

The warehouses we discuss later come only part way along the path to this ideal. But they're considerably more than automatic sorting systems or highly mechanized storage systems.

**What's behind the optimism.** Here's Arthur Spinanger, associate director, Industrial Engineering Division, Proctor & Gamble Co. His firm is vitally interested in automatic warehousing but finds present justification difficult in many cases.

"Automatic warehousing is here and will grow," he says. "There are many reasons. Increasing complexity and volumes, need for greater picking speeds, mental and physical efforts of workers, need for more storage in less space, better management control."

Manufacturers of warehousing equipment are equally optimistic.

• Norman Sullivan, sales manager, Custom Engineered Division, The Alvey-Ferguson Co.: "Automatic warehousing has not yet fully blossomed, but it will in the next 10 years as more and better techniques and controls become available. More firms are using auto-

#### CARD READER

at Colgate-Palmolive's automatic warehouse in Kansas City transmits orders to control panel, starts cartons flowing. Live rail telescoping sections (right) extend six branch-line conveyors inside trucks for quick, efficient loading.



Mathews Conveyor Co.

**CONSOLIDATION** conveyors at Jerseymaid's Los Angeles warehouse bring together products from automatic and manual pick lines. This warehouse handles frozen foods. Temperatures range from 0° to -10°F.

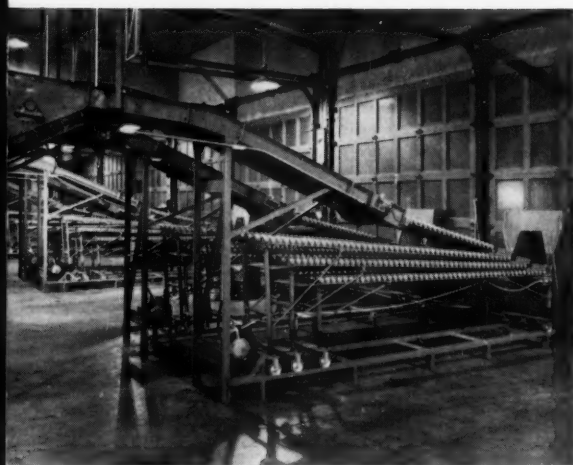
## TO FIND OUT MORE ABOUT

**Arthur Spinanger:** Some firms have a material handling staff proficient enough to design their own. There also are consultants and there are equipment suppliers with good engineering staffs.

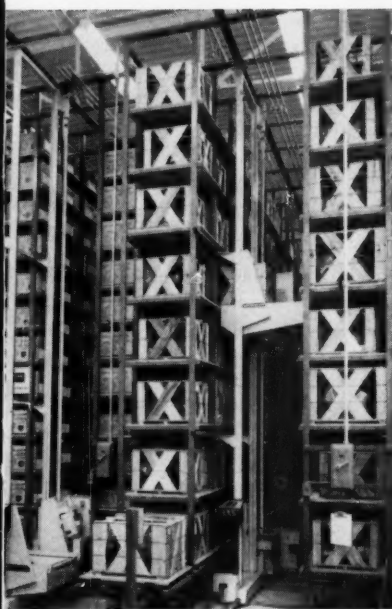
**L. J. Johnson:** Go to the conveyor manufacturer. I feel no consultant has had enough experience with actual installations. Ethical manufacturers will consider the installation from all angles, will keep the investment as low as possible. They will not be influenced by previous jobs nor their line of equipment.

**Norman Sullivan:** An automatic warehouse is primarily a conveyor job. Often as much as 80 percent of your total cost will be in conveyor equipment. And, in the final analysis, it is the conveyor company's responsibility to





The Alvey-Ferguson Co.



**MECHANICAL** carriers, called Retrievers, both pick orders and fill storage slots at the Reliance Electric & Engineering Co. Retrievers work from pushbutton controls.

The Triax Co.

## AUTOMATIC WAREHOUSING

make an automatic warehouse work. Moreover, conveyor companies have their own facilities to build and service the equipment, and engineering specialists with knowledge and experience unavailable elsewhere. That's why the conveyor firm should be the prime contractor and should be charged with the responsibility for performance.

**H. C. Blake:** Lowest costs and greatest returns will come from firms equipped to perform all the functions of requirement analysis, design, as well as to engineer, manufacture, test, install, and guarantee specified results. The few consultants who have real manufacturing know-how and are willing to learn new tricks will reap a rich harvest in automatic warehousing only if they are able to design and accept operational responsibility for the system.

matic accounting equipment which works in nicely to control physical distribution."

• L. J. (Ben) Johnson, sales manager, Mathews Conveyor Co.: "There's a universal interest in automatic warehousing. Here's one of the really important areas where you can effect measurable savings."

• H. C. (Bud) Blake, executive vice president, ADMOS Inc.: "The perfect warehouse requires maximum cube utilization in addition to perfect coordination and balance between all operational facets—order and data processing, replenishment, order selection, packing, loading, and transportation. These are obtainable only through automatic warehousing. Distribution adds neither profit nor quality, only costs. This, because of our competitive way of life, will make necessary the only other ingredient required—economic justification."

**If they're so good . . .** why hasn't everyone got one? Penn Fruit Co., Philadelphia, is a good example. Its warehouse is highly mechanized but cannot be considered automatic. Penn Fruit's Joel Jaffe tells us:

"We have been following the trends very closely. There are a few major problems to be resolved before we can seriously say that an automatic warehouse is a panacea." Among the difficulties, he lists installation costs vs. labor savings; replenishment problems; changes in product container size vs. equipment flexibility; constant adding of new items sold by supermarkets; downtime; dependability; surge areas, and the equalization of delivery loading time.

Proctor & Gamble's Spinanger puts it another way:

"We need the results of automatic warehousing. But the equipment currently is too expensive. For example, one equipment company recommended that we put in some automatic warehouse components costing \$800,000 and requiring 10 additional workers. How could we justify a system like that without savings?"

Proctor & Gamble, no ostrich, watches developments. It considers automatic warehousing one link in a long chain. Spinanger says they're working on all links at once.

However, Spinanger appeals to the equipment supplier to look at users' costs, then design to meet them. That would lead to more installations, he concludes.

**How long to pay out!** Alvey-Ferguson's Sullivan warns not to put undue emphasis on payout periods. Often, when an installation does not conform to a set formula, the company won't buy. Perhaps sound, concedes Sullivan, but he adds quickly that automatic warehouses may have advantages overlooked by formula buying. Maybe they offer a marketing advantage well worth the added cost of paying off in six years instead of three, to cite a hypothetical case. "It's interesting," says Sullivan, "that progressive companies which don't always adhere to rigid economic justification frequently remain ahead of the pack."

Sullivan says there's no standard way to make an automatic warehouse. He tells of two jobs his firm did for the same company with the same products. The second differs from the first.

The sensitive part of planning automatic warehouses is balancing, says Sullivan. You change something and it affects something there. You must allow for

special operations, such as addressing, labeling, weighing, inspecting, and so on. Also, you can't pick faster than you can replenish.

**More ideas.** Johnson at Mathews suggests no single automatic warehouse has really determined whether

### THE GREATEST— ONE MAN'S OPINION . . .

Of the truly automatic warehouses, Brunswick Drug Co.'s "Gertrude" was the best and fastest. This is the opinion of a manufacturer of automatic warehouses, a competitor, if you please. Brunswick no longer uses a central warehouse. It was supplanted by district warehouses closer to outlets.

But Gertrude did everything she was asked and did it uncommonly well. She enabled Brunswick to give same day service to every drugstore served by Brunswick in a large area of California, frequently at killing transport costs.

Our informant described Gertrude like this:

A slide job—hardboard tread and sheet metal guards. Binary control system, star wheel escapements, controlled by solenoids. Two vertical banks of vacuum tubes for controls. 33,000 total items in the warehouse. 1,700 line items accounted for 84 percent of the selections (broken case quantities only and all fast movers).

Punchcards into a card reader. Shuffled cards, digested the information. Thunk! Items began to drop from dozens of slides at once. Conveyed to accumulation. Swept into a carton. Machine printed list of missing items, if any. Workers picked these from dead storage to complete order. Indication of speed: pick and assemble a 160-item order in 15 seconds. Big advantage: high accuracy, picking without error.

his warehouse will pay for itself. But there are some impressive savings. He also lists other assets:

- Better customer service.
- Less pilferage.
- Better product protection.
- Speedier ordering and accounting.
- Better inventory control.

He says the best prospects are firms with a great volume of products that can be conveyed. The operation has to be big because the payoff depends on size. A rough rule: you must pick at least 10,000 items daily.

**The slow-moving items.** Most experts mechanize handling of fast-moving, volume items, do the remainder manually or semiautomatically. Not Blake of ADMOS. He agrees to automatic handling for the 10 percent that provides 85 percent of the volume. But he also believes in handling the other 90 percent automatically, if economically justified. Because, he says, collectively the 90 percent often represents more labor costs than the fast moving bulk-handled items. So it pays to handle them as efficiently as the fast moving items.

Blake sees two sorts of warehouses in the future:

1. The distribution center, a balanced system, with everything immediately available for distribution. Everything's stored mechanically, doesn't have to be rehandled. Theoretically, a personless warehouse.
2. The shipping point in a warehouse of a manufacturer. Economic production runs create out-of-balance stock requiring surplus storage. The warehouse stores mechanically no more than is needed at the point of selection, banks the rest in dead storage.

Blake sees space savings as a big allure in automatic warehousing. A traditional warehouse, he says, is lucky to use 18 percent of its cube with a pallet system. (figured by subtracting cube lost by pallet thickness, aisle width, space needed for special trucks, pallets with broken loads averaging only half full).

**The outlook.** Early automatic warehousing often suffered from lack of careful systems analysis or refusal to abandon inefficient methods. Competitive pressures will stimulate automatic warehousing. So will rising labor costs and expanding markets. The marketing report says growth will mushroom during this decade, continue at a slower, but steady, pace during the 1970s.

There's no standard automatic warehouse, no two alike. Each user will judge value in terms of potential savings. He'll find some of these costs can be reduced: direct labor, inventory expense in investment and space, breakage, pilferage, order filling error, shortage, insurance, order processing.

Watch out for some of these difficulties. They're hard to change once installed. They must retire the investment early because they may be obsolete in less than 10 years. You need experienced operators to keep the machinery running. An automatic warehouse should run continually because downtime is expensive. Labor will resent automatic warehouses, may try to retard their coming. A long-range forecast sees the hiring of 2,000 skilled systems analysts, loss of 50,000 unskilled labor jobs (manual picking, replenishing, etc.) in the next 10 years.

Research continues. Automatic warehouse manufacturers and others are working to reduce warehouse handling, improve flexibility through better controls and unusual devices, and improve conveyor control to provide precise placement and identification. ♦

Associate Editor Dick Dietz combines inside information and predictions in "What's Next in Automatic Warehousing?" on page 70. You'll also want to see his "Honor Roll of Best Automatic Warehouses" on page 71.

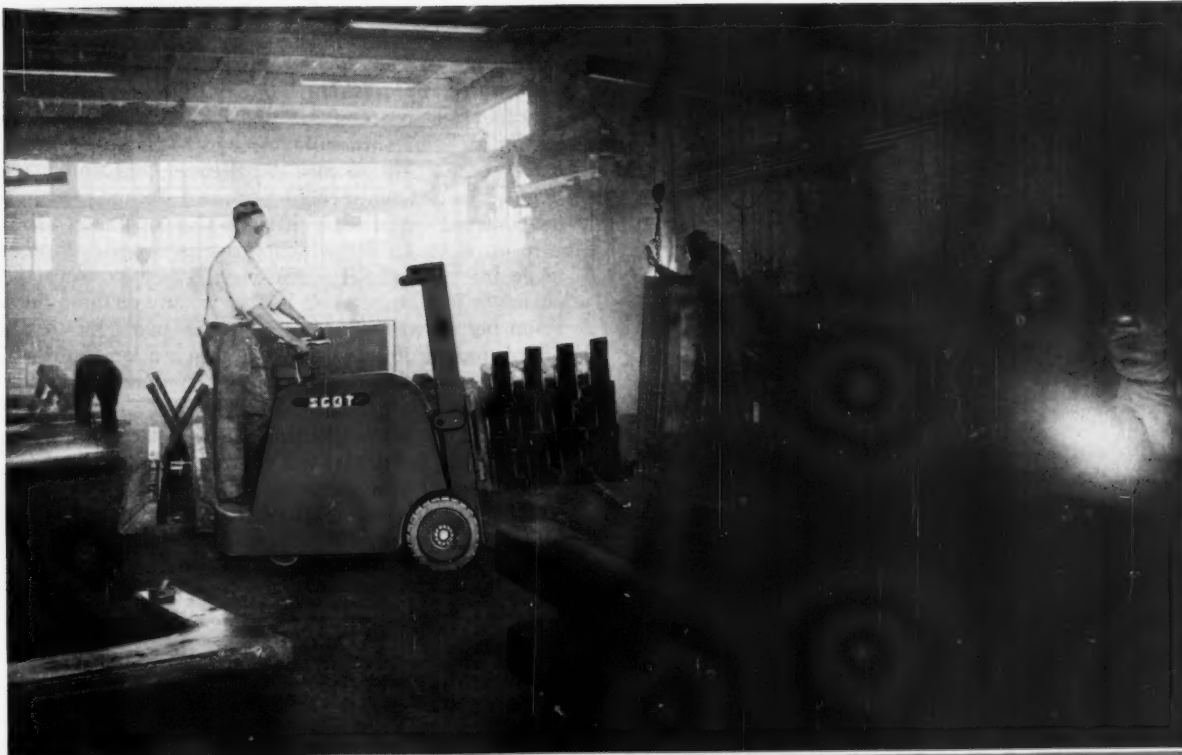
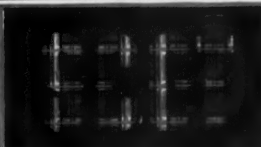


Photo courtesy of Sticker Corporation

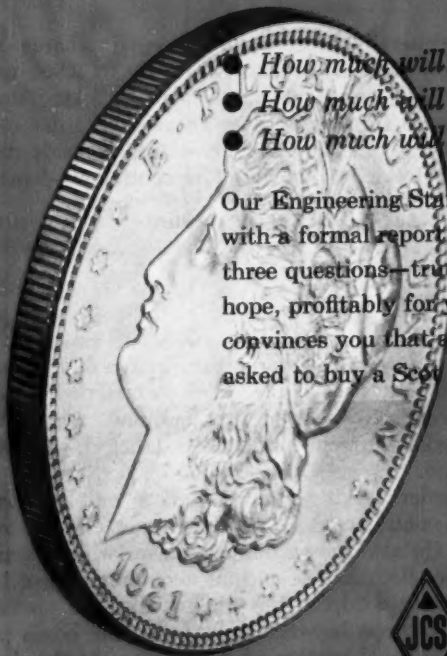
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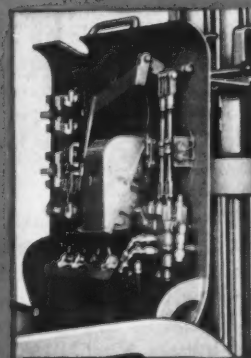
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**JAMES CAMPBELL SMITH, Inc.**  
WILLOUGHBY, OHIO





## What's next in automatic warehousing?

EACH AUTOMATIC WAREHOUSE is somewhat different from its predecessors, often more sophisticated. There's reluctance to talk about new installations until they're ironclad perfect. Remember the fun poked at the installation of the U.S. Post Office in Providence?

Alvey-Ferguson devised a second Colgate-Palmolive warehouse, due to open about the first of the year. This will be larger and different (newer controls) from the widely-publicized Kansas City installation for the same company.

Admos Inc. (see "Giant Order Filler Fights High Distribution Costs" in June MATERIAL HANDLING ENGINEERING) is working on several new projects we can't mention yet.

Two other firms, The Triax Co. and Mathews Conveyor Co., have new installations MHE may talk about but not identify. The Triax innovations place this company squarely in the automatic warehousing field. The Mathews installation is one of the first to work out automatic replenishment as well as picking and accumulating. An earlier example: Chelsea Milling's warehouse which runs cases from production directly into a storage magazine from which they're picked automatically.

**Card controls.** The Triax Co. recently placed in an electric manufacturer's warehouse a system that runs from punchcards. Triax builds huge sets of racks close together, served by mechanical order picking carriers called Retrievers. They both pick and replenish, worked by pushbutton. Now, a device in the Retriever reads the first or last five rows on a punch card, works it automatically.

Triax further plans a system, not yet tested, which consolidates Retriever controls at a remote spot. You may work the Retrievers without going near them. Triax warehousing differs somewhat from most of the other systems. It handles heavier items on pallets,

frames, axles, in tote boxes at slower speeds than smaller packaged goods on automatic conveyors.

**Automatic replenishing.** Mathews worked out a new way to refill an automatic line with packaged goods. It's for a chemical manufacturer in Michigan.

Key equipment: a case depalletizer, fed unit loads by a lift truck from receiving or dead storage. Vacuum head of the depalletizer lifts off the top layer, sends it to an unscrambler which turns each case properly to go into live storage crosswise. A belt conveys the packages to a hinged belt leading to any of three tiers. From here, a tripper car carries the packages to the proper one of 20 lanes per tier. When a lane runs out of cases, a warning sounds and the commodity number that's short appears on a control panel so cases may be added automatically from storage.

Indicating lights also tell when a full palletload can be dispatched to a particular lane and also where the tripper cars are on each tier. To move the palletload from the depalletizer, the operator places punch card directions into an electric control console near the depalletizer.

Mathews calculates the average load (12 cartons per layer and 5 layers) could be handled at 3,300 cartons an hour. Here's a table of estimates, depending on cartons per layer and layers per load, based on continuous supply.

CARTONS/LAYER	LAYERS/LOAD	RATE/HOUR
25	4	6,500
24	4	6,300
20	5	5,500
15	5	4,100
12	7	3,500
12	5	3,300
12	4	3,100
8	7	2,300
8	5	2,200
6	8	1,800

This generally exceeds the system discharge rate (picking), somewhere between 1,800 to 2,900 cases an hour. Here's a table of estimated picking times, based on 16 seconds to clear an average order of 15 cases through the hinged belt with 7 seconds delay between orders, all depending on continuous demand.

CASES/ORDER	CASES FROM MANUAL	CASES/HOUR
10	0	1,800
15	0	2,100
20	1	2,400
30	2	2,900

**Rest of the system.** It fills orders from a 60-line automatic release system and a 30-line manual pick system. The warehouse, including replenishing, needs only three workers—except for checkers, labelers, stencilers, and so on.

The order picking control worker puts an order into the control console which releases cartons from storage. He also tells a manual picker which cartons to release. Both lots of cartons accumulate on a belt conveyor for a trip to the truck dock. The operator allows 7 seconds between orders and tote boxes precede the manual portion of each order. At the dock, belt and gravity conveyors run cartons directly into trucks. ♦

## HONOR ROLL OF BEST AUTOMATIC WAREHOUSES

COMPANY	WAREHOUSE LOCATION	PICKING UNIT	CAPACITY (LINE ITEM)	OUTPUT PER HOUR	STORAGE UNIT	RELEASE	COMPUTER	READER	IN USE? SINCE—
Abner A. Wolf	Detroit	Case	1,722	1,000	Inclined Chute	Solenoid	Yes	Yes (card)	Yes—1958
Brunswick Drug*	Los Angeles	Individual Items	1,800	15,000	Inclined Chute	Solenoid	Yes	Yes	No
Chelsea Milling	Chelsea, Mich.	Case	30	1,600	Roller Gravity	Merger Arm, Swing Conveyor	Yes	Yes (also pushbutton)	Yes
Colgate-Palmolive	Kansas City	Case	72	1,850	Wheel Conveyor	Solenoid Works Air Piston	Yes	Yes (card)	Yes—1959
Gallo Wines	South San Francisco	Case	74	1,250	Roller Gravity, Chute	Solenoid, Pushbutton	No	No	Yes—1957
Hickok	Lyons, N.Y.	Individual Items	600	650	Inclined Chute	Solenoid, Pushbutton	No	No	No—Reduced Demand
Jerseymaid	Los Angeles	Case	120	1,850	Roller Gravity	Solenoid	Yes	Yes (card)	Yes—1959
Johnson & Johnson	Brunswick, N.J.	Case ..... Loose Goods	2,000 ..... 950	1,800	Inclined Chute—Some Wheel	Solenoid	Yes	Yes (card, also pushbutton)	Yes—1960
Lambert-Hudnut	Lititz, Pa.	Case	20	3,000	Roller Gravity	Electric Motor-Driven Belt	No	No	Yes—1957
Nulaid Farmers	San Leandro, Calif.	Case	72	2,000	Powered Roller, Automatic	Air-Electric	No	No— (selection switches)	Yes—1958
Reliance Electric	Cleveland	Pallet Load	5,200	60	Welded Rack	Retriever	No	No	Yes—1959

\*See "The Greatest—One Man's Opinion" on P. 68.



## Organizing for efficient warehouse control

**CHECKING** a sales forecast are M. N. Thomas (seated), manager of General Merchandise and Material Control, and D. W. Bon-sall, Warehouse Division manager, The Goodyear Tire & Rubber Co.



M. N. THOMAS tells of a trend that places warehousing in a firm's merchandising division. Warehousing often used to be part of the factory, bedded down with production. Sometimes it was mated with sales. Thomas says warehousing must be independent of both:

- For efficiency.
- To get proper warehouse location. Where you build a warehouse should be related to manufacturing and sales but dictated by neither.

For the last five years, industries have been more and more concerned about distribution and warehousing, particularly to reduce costs. "Cutting costs of the manufacturing company must be programmed into distribution," says Thomas. "Production already has gone much further in applying savings."

The Goodyear Tire & Rubber Company was one of the early firms to set up warehousing as part of merchandising. Thomas is Goodyear's manager of

General Merchandise and Material Control. The General Merchandise Division includes warehousing, merchandise distribution, and traffic. Furthermore, Thomas' division controls raw materials, evaluates inventory and material in process. His group predicts sales, production, and inventory for about a year ahead—what they call the short-term forecast as contrasted with the long-term forecasts of market analysis.

**Warehouse organization.** The rubber industry is viciously competitive. Customers demand and get quick, accurate service. So dealers and company stores require quick stock replenishment—a brutal task with 2,000 line items in tires and tubes alone, besides thousands of other items. The Goodyear time-table for any item says ship today, not later than tomorrow—service in 48 hours, probably less.

Every company warehouse can't carry every item Goodyear makes or buys for redistribution. So Goodyear has two levels of warehouse based on fast and slow moving items (see diagram). Thomas says these ratios generally hold true:

Twenty-five percent of all items account for 85 percent of all sales.

Seventy-five percent of all items account for only 15 percent of all sales.

Goodyear set up 52 district warehouses to stock fast moving items, ship them right to dealers and stores. The district warehouses were sited with one eye on population and car registration and the other eye on sales offices and Goodyear manufacturing plants.

Serving clusters of district warehouses are five regional warehouses. They send slow moving items and emergency shipments right to dealers and stores, hold backup stock for district warehouses, absorb early surge of seasonal items from production.

For example, at the time MHE's editors visited Goodyear last summer, they were making snow tires. The first shipments went immediately to regional centers as collecting points. As fall came on, the factories switched snow tire shipments to district warehouses for later shipment to dealers and stores. By the time you received this magazine, Goodyear finished making snow tires. Now, distribution has only the district warehouse stocks and the regional warehouse



backup stocks to work with. This is a big reason why Thomas' forecasts must be accurate.

**Three improvements.** Goodyear was able to devise efficient levels of warehouse and stock because of technical changes:

1. Better communications—teletype, for example, between all key points.
2. Better warehouses—improved handling, more detailed records, faster order processing.
3. Better transportation. Thomas says Goodyear services outlying points that couldn't be reached economically as recently as eight years ago.

**Knowing what goes on.** Each warehouse district has a stock control man responsible for stock replenishment. He gives full attention to fast moving items, keeps this stock complete and available. The regional center, on the other hand, keeps track of the slow moving items. This divides responsibility suitably without sacrificing Goodyear's standards of service.

Through punchcard accounting a complete stock available record on volume items is made up daily. This goes to the Merchandise Distribution Department so headquarters can watch the flow of goods.

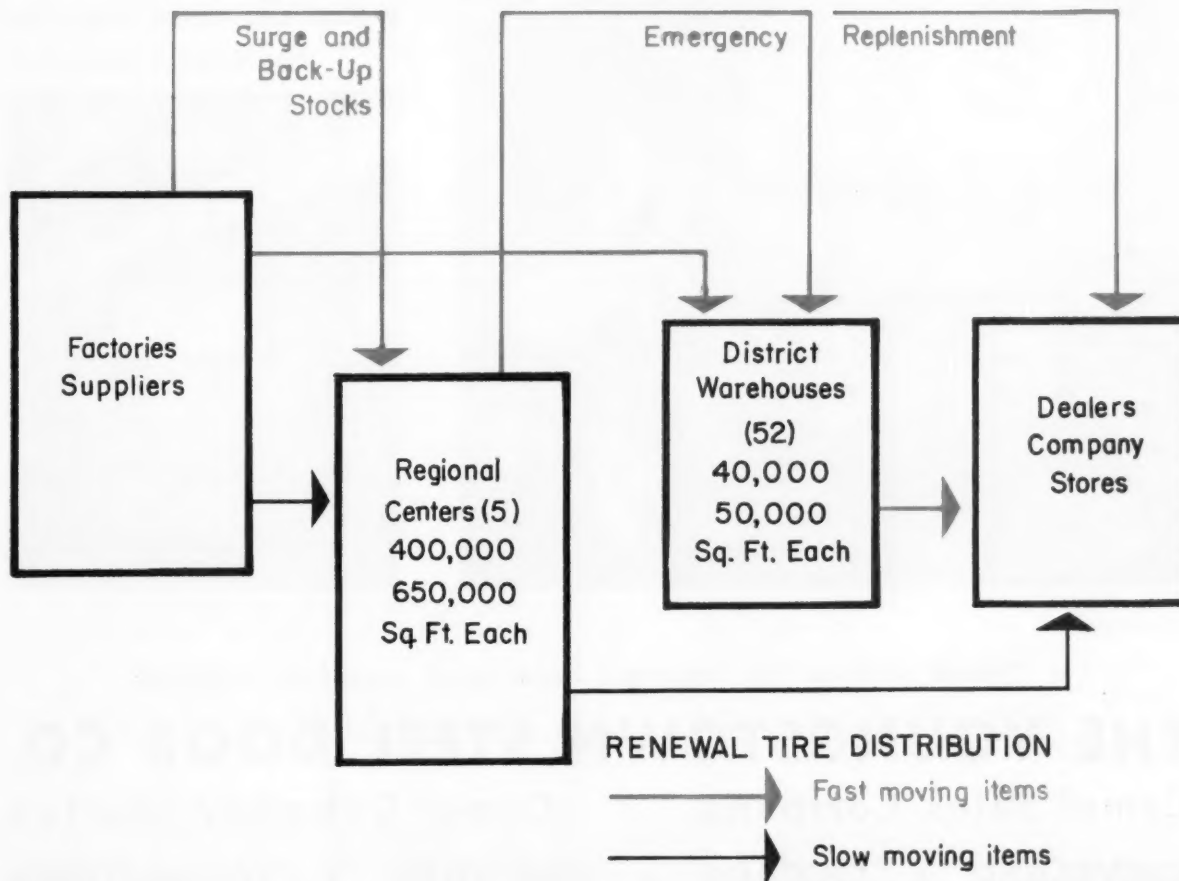
This also gives Goodyear reasonable cycle time for replenishment. The stock control man reorders regularly once a week. Thus, he looks over his inventory weekly, catches and reports fluctuations promptly. This is an aid to forecasting by headquarters.

Goodyear tries to ship quick moving items directly from production lines. Merchandise Distribution may even allocate from production before items are produced. Goodyear then can plan these shipments to send out full loads at lowest rates. On slow moving items, Teletype between district and regional warehouses let's them ship right to dealer or store.

A further control: Merchandise Distribution has a subdepartment in each manufacturing plant. Take the Topeka tire plant. The merchandising man may want to send to a customer in Omaha an item made only in Gadsden. The merchandising man orders the item shipped direct. If this is impossible (out of production), he orders it shipped from Kansas City (nearest regional warehouse) direct to Omaha or to Omaha's customer.

**Warehouse handling.** Warehouse Division Manager D. W. Bonsall says the great variety of products limits Goodyear warehouse handling pretty much to pallets, racks, and lift trucks. Goodyear uses pallet racks three high, four high in two new regional warehouses.

Workers at receiving sort tires by size and type, unitize loads on pallets, truck them to storage. The lift trucks handle two pallet loads at a time, each pallet holding 40 to 60 ordinary-sized tires. For shipping, workers stack tires in boxcars and trucks. Bonsall says they don't ship by pallet because palletized tires don't ride well, cause too much loss of cubage, and pallets must be returned. ♦



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Circle 139 on Reader Service Card

MATERIAL HANDLING ENGINEERING

[illegible]





**PRODUCTION** of sorts is moving into the warehouse. Here, workers use a semiautomatic machine to mount industrial tires and fill them with air. Such work is done more efficiently after an order is placed, rather than try to guess the needs beforehand.



**A SIDE DELIVERY** attachment on this truck enabled General to cut down aisles to 6 ft. in the retread rubber section. The truck goes in straight. The attachment moves its palletload off to the side.



**PALLET RACKS** give General full usable height under 20-ft. ceilings. The 60 x 60-inch pallets here hold 48 30-lb. tires. One driver can handle 40,000 lb. of tires in three hours, load them on a trailer to the docks.



**CORE LIFT** attachment lowers into the well of a tire stack. Four prongs are forced out, gripping the tires from the bead. The core lift is rugged enough to lift six 180-lb. tires at once. Two men, using a core lift, can unload a boxcar and stack the tires — a job that used to require nine men.

**DISPATCHERS** drive trailer-trains from the order picking areas to the docks. Shippers load the trailers, leave them on the outskirts of their sections for the dispatchers who make up the trains. At the docks, truck drivers load their own vehicles.

Akron also receives a great deal from outside suppliers for reshipment, industrial tires, wheels, automobile accessories, and the like. Akron even carries recapping equipment, machine parts, and molds.

The main warehouse ships to 23 district warehouses, to original equipment accounts, dealers, high mileage accounts, the military, export.

**The control documents.** General shines at plotting its warehousing course, knowing what it receives and ships. Engle gets his facts from four daily documents. These records give him complete control over warehousing, enable him to answer questions from other divisions and from his bosses. The documents are:

- Receiving
- Shipping
- Inplant Handling
- Personnel Record

To operate his warehouse, Engle uses more than documents. He uses his eyes. If material sits there day after day without moving, he finds out why. "I set down inventories of slow moving items and send them to the right people for a decision," he says. "The hardest decision is to say 'scrap it.'"

**Equipment controls.** Engle cuts warehouse costs through a well-planned maintenance program. He won't buy equipment unless he can get parts quickly, preferably from a local dealer. Engle records the costs of all repair parts, summarizes them yearly to get parts cost per hour of operation. He uses these figures as a basis for replacement.

Engle plans on 10-year life expectancy for lift trucks. His are mostly counterbalanced, some gasoline, some LP gas, and some electric walkies. There are 20 trucks, 1,000- to 5,000-lb. capacity, also 10 tractors which pull trains of 3 x 7-ft. trailers.

**How they operate.** General has two groups of warehouse workers:

1. Shipping crews (2-man teams) who assemble orders on trailers, leave them on the outskirts of their sections.
2. Dispatchers who make trailer trains out of the picked orders, drive them to the dock to over-the-road truckers for loading.

The warehouse handles LTL (less than full) loads like this. The office schedules all LTL carriers at specific times, but only in the afternoon. Shipping crews pick LTL orders in the sequence the carriers will arrive. The dispatchers run the trailers with orders to the dock, check the shipments, then turn them over to the drivers.

Full truck loads are shipped in the mornings, no special carrier schedule. Shipping crews and dispatchers get a sheet with the full order on it, fill it the same as for LTL shipments. The warehouse makes bills of lading for the freight companies. The main office bills the customers.

The warehouse works two shifts of eight hours each. There's not much floating although a shipping crew occasionally must cover a good deal of the warehouse to fill an order. In the main, shipping crews remain close to home. ♦

Circle 35 on Reader Service Card

## D&M CANVAS CAB ENCLOSURES



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REMARKABLE  
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### ● QUALITY CONSTRUCTION

Heavy army duck canvas which is waterproof and mildew-proof. Can be rolled up in mild weather.

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Circle 111 on Reader Service Card



**OFF-THE-ROAD** tires are stood up by spreading the forks to engage the tread, raising the forks, and moving the truck forward. These forks have a knife edge on the inside, enabling them to skim tires one-by-one off a stack.

Raymond Corp.



**NARROW AISLE** truck with reach attachment revolutionized handling at General's Chicago district warehouse. This versatile truck also has adjustable clamp-type forks.

## Versatile equipment at the district warehouse

THE CHICAGO district warehouse, The General Tire & Rubber Co., is at the mercy of fluctuating inventories, must make best use of space at peak periods. Good equipment does the job—a narrow aisle electric lift truck with reach attachment and adjustable clamp-type forks, plus pallet racks. The warehouse is 1-floor, with 15-ft. ceilings.

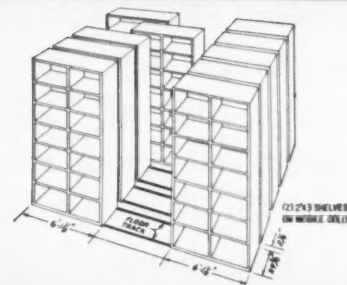
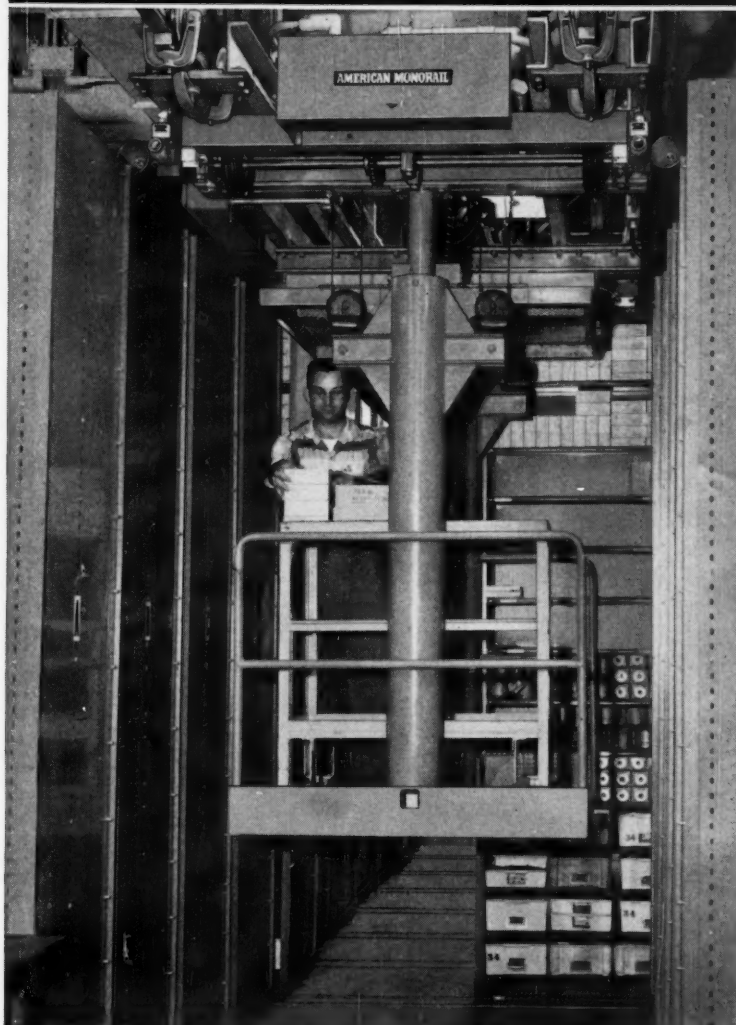
Manual handling was slow and wasteful. Workers stacked auto tires as high as they could reach, wasted cube. This frequently flattened the bottom tires, made them difficult to mount by machine. Heavy truck, bus, aircraft, and tractor tires were stored upright, more loss of cube.

Now, the lift truck easily handles two 60 x 60-inch pallets at a time, stacks them three high to the ceiling. The truck has 4,000-lb. capacity on a 24-inch load center, easily negotiates 9-ft.-wide aisles. The adjustable attachments enable the fork truck to skim tires from a stack. Heavier tires now are stored flat. The adjustable forks efficiently turn them upright for rolling.

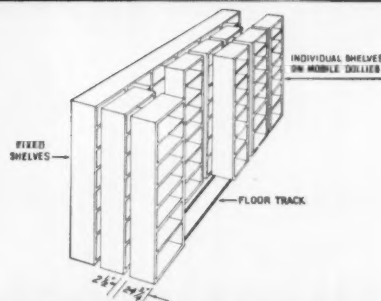
Benefits: more tires stored, customer service improved, greater volume of goods handled without increasing the work force, simpler inventory control (through pallet rack unitizing), and better housekeeping. ♦



# LOOK MA...NO AISLES!



## ACTIVE STORE ROOM



## INACTIVE STORE ROOM



An American Monorail carrier plus mobile shelves added 7,500 sq. ft. of usable storage space to a Pennsylvania plant.

Ten foot high shelving units equipped with grooved wheel dollies ride on double rails mounted flush to the floor. Shelf units roll out into the aisle smoothly with a pull equal to 1% of their total weight. The Monorail carrier, used for loading and unloading shelves, has a photo cell safety device that prevents running into a shelf unit.

**Major Benefits:** Stock stays cleaner and the amount of space required for aisles is cut in half.

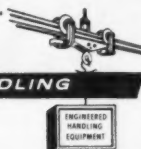
**Free Folder** — pictures and describes stacking by specialized American Monorail Stackers in many types of warehouses. Write for Bulletin SB-1.

ENGINEERED MATERIALS HANDLING

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DIVISIONS: Conveyor Division, Tipp City, Ohio — Canadian Monorail Co., Ltd., Brampton, Ont.  
Circle 5 on Reader Service Card



# AMERICAN MONORAIL

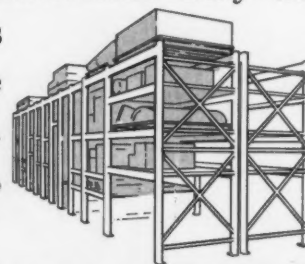
When a squirrel needs more storage space, he simply finds another tree. In business, the need for more storage space means SPEEDRACK. The need for a flexible system to handle the complexities of modern merchandising also means SPEEDRACK.

For only this proven and *perfected* boltless, steel storage rack adjusts to changing inventory requirements *now* and *from now on*.

SPEEDRACK'S versatility stems from an exclusive, patented, self-locking connector adjustable on 2-inch centers. *No other rack has it!*

There are thousands of SPEEDRACK installations. May we show you photos illustrating how SPEEDRACK is used to solve problems in businesses like yours? Write Speedrack Inc., 4400 Oakton Street, Skokie, Illinois.

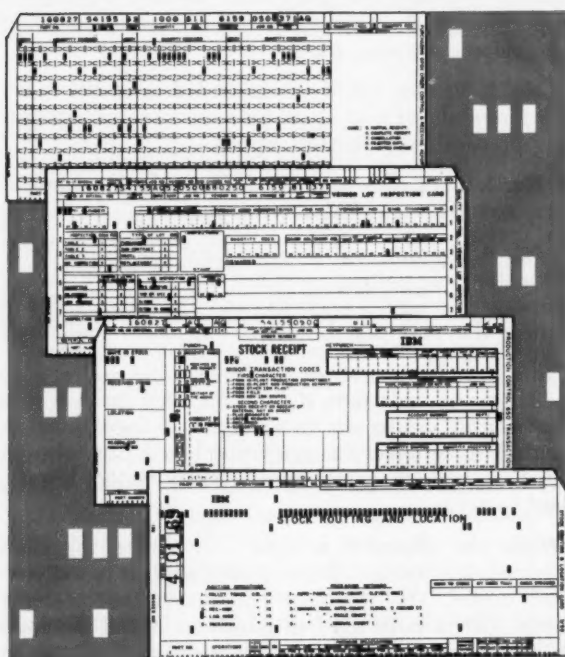
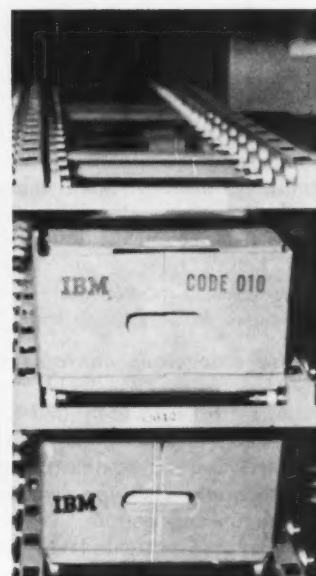
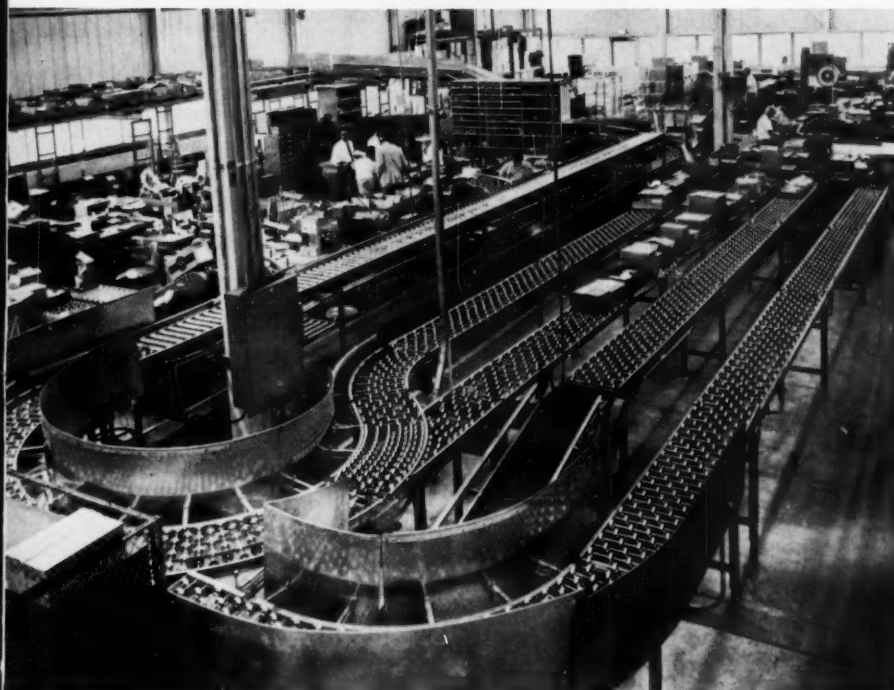
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Circle 119 on Reader Service Card



**Store quickly, accurately with  
conveyors, standard boxes,  
punch cards**



Two BIG IDEAS—and a host of smaller ones—make International Business Machines' General Products Division warehouse in Rochester, Minnesota, a study in efficiency.

- 1—Standard containers fit all conveyors, racks.
- 2—A handsome flow system reacts sensitively to punch card control.

It took IBM more than two years and \$330,000 to work up the system. But the results! Warehouse processing time is down to 6 hours from 24. Savings in manpower and space will pay for the installation in 2½ years.

**The setting.** The warehouse area is 60,000 sq. ft. The building sits a quarter mile from the main complex of the plant where they make card collators, reproducing punches, card interpreters, and bank proof machines.

One of the material handling engineers showed an MHE editor around.



He discussed the IBM theory of warehousing, based on control of the package, the handling equipment, and the paperwork.

**What's in the warehouse.** IBM has 24,000 active part numbers (line items) for the parts that go into the machines. The firm stores 5,000 of the bulkier items in rented warehouses in Rochester. We'll deal with the balance, the 19,000 line items that come directly to the IBM warehouse.

**The equipment.** The storage space is filled with racks of all sorts: small pan racks, shelving drawers, shelf bins, friction slide racks, gravity flow racks, and pallet racks. Most of the storage is slot system, parts going into any available rack, control retained by filing location cards. Some is bin storage, that is, labeled racks and drawers that always hold the same parts.

A conveyor system, nearly 3,000 ft. long, serves most of the racks. The conveyor is mostly gravity, 60-ft. sections which drop from 48 to 18 inches. They're connected by short power belts with a speed of 55 f.p.m. When a box nears the powered belt, the box trips a microswitch which turns on the belt, carries the box to the top of the next gravity section. This continues until the box reaches its destination.

If a gravity section fills with boxes, the power that feeds that section waits until there's room for another box before turning on. This guards against jams. There are 21 power units for the conveyors serving the racks. Motors range from  $\frac{1}{2}$  to 1 hp.

**Those marvelous containers.** Key to fast storage: the containers. IBM looks at packaging of incoming parts in three ways (called levels):

Level 1—Plastic or paper bag for tiny parts.

Level 2—Four standard paperboard boxes, divider trays of pulp, cell-type dividers, a composite can with metal top and bottom.

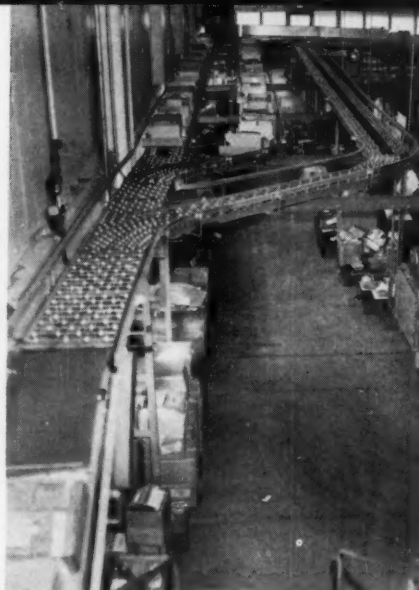
Level 3—Corrugated and solid fiber tote boxes in five different sizes. There are three solid fiber boxes of the same height and width but different lengths. There's a corrugated carton of the same width and length as one of the solid fiber boxes but a different height. There's a corrugated relay box from the Burlington, Vt., plant.

Level 1 fits into Level 2 which generally fits into Level 3. IBM, as much as possible, requests that suppliers ship in Level 3 boxes. The ideal: right into storage in the original package. IBM repacks the others before storage.

Some of the features worked out (between material handling and purchasing) to develop the standard containers: Weight control, so workers would not have to lift containers weighing more than 60 lb. The interfitting pack modules (levels). Protection of parts in the containers. Receiving in uniform quantities to minimize counting by IBM.

The firm based its storage cube requirement on the number of parts needed for protective inventory and the economic ordering quantity (EOQ). The goal: space for a protective inventory plus  $1\frac{1}{2}$  EOQs on hand at all times.

**What makes it work.** Warehouse control begins early, when a part is ordered from the supplier or



**ORDERS MOVE** from receiving to these three in-transit storage lines. Inspectors (out of sight at right) release orders by pushbutton. First box of each order carries paperwork in envelope.



**INSPECTORS** receive orders on lower level conveyor, inspect them while the orders sit on gravity conveyors (top photo). Completed orders move up inclined power belt, controlled by pushbuttons at right. After moving past repackaging, orders arrive at the conveyor diverter (bottom photo). Technician pushes one button on control panel to send orders to proper storage zone.

from IBM's own plants. At this time, IBM makes four punch cards:

**No. 1. Receiving control card.** Contains all facts about the order. This card later becomes a receiving report by mark sensing the quantity received when the shipment comes in.

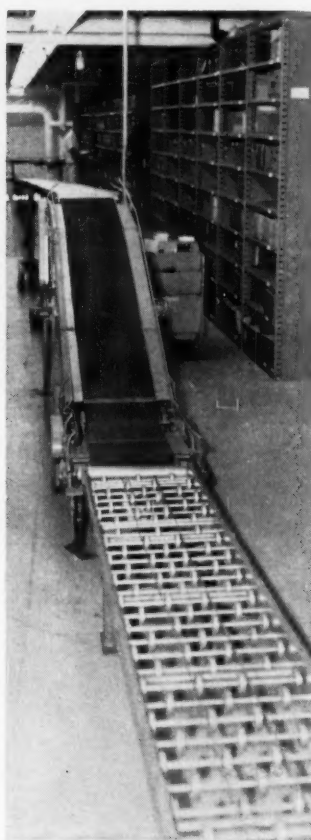
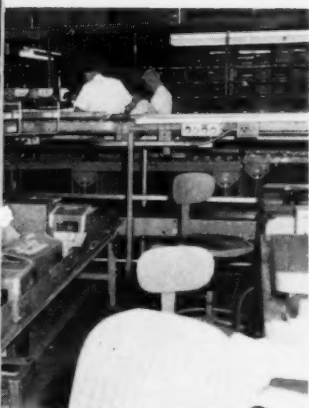
**No. 2. Vendor quality control card.** Includes space for the results of inspection, for later machine accounting preparation of quality reports.

**No. 3. Stock receipt card.** Updates perpetual inventory records in an IBM 650 computer.

**No. 4. Routing and location card.** Includes all information on routing, whether the part will be repackaged before it's stored, and the exact location where the part will be stored—by zone, row, rack, bay, or stack.

The four cards now go into an open order file in the control center on the warehouse mezzanine. A parts history folder for every purchased part, also on file here, includes prints, specifications, vendor history, and so forth.

**When the shipment arrives . . .** a receiving clerk removes the vendor's packing slip, sends it to the control center. The shipment remains in the receiving area. A clerk pulls the four punch cards and the parts history folder, mark senses the quantity received on



**ORDERS** to be shipped arrive at this consolidation area. Stock men make them into unit loads, package them according to destination. Lift trucks move loads to the dock which serves both for shipping and receiving.

**CONVEYORS** require little power for long distances. Packages move on gravity sections until they reach power belt which kicks on automatically, carrying packages to top of next gravity section. Limit switches prevent jams.

the receiving control card (No. 1). The control center sends the vendor packing slip to accounts payable and sends the card to machine accounting where they make out an order report to keep purchasing informed.

Meanwhile, cards 2, 3, and 4 go into a transparent envelope which sits on the first box of the order. The quantity and part number are marked on the transparent envelope for quick reference.

**Into the system.** Now the order (one box or many) goes on one of three overhead conveyor storage lines to await inspection. The lead box of each order gets a distinguishing flag. An inspector, by pushbutton, releases an order to his station, sends it away again by powered conveyor. He marks the inspection results on a card which he returns to the control center at the end of his shift.

Some parts need more work. These, after inspection, go directly to an accumulation area for routing to manufacturing. When they return for storage, they go on a conveyor directly to the racks. Orders not needing inspection go directly from receiving to a storage line.

Most orders, however, move on conveyors to a check point. Here, stock clerks verify zone and bin location and send critically-needed parts to shipping for immediate issue. The remainder go on a conveyor which runs past repackaging. If the original packages conform to IBM specifications, they move on. The remain-

der are pulled off and repackaged either by hand or by a packaging machine with an automatic counter.

**On to the racks.** Next station after repackaging is a conveyor diverter. Storage is on two levels divided into zones. The packaging technician at the diverter station pushes a button on the master control panel, automatically sends the parts to the proper zone. Small lights at this station tell the controller that certain lines are full. If so, he holds back the order temporarily.

Each zone has a stock man responsible for stocking and issuing. The routing and location card (No. 4) tells him exactly where to place the boxes of parts. Stocking occurs quickly and easily because the standard boxes fit the spaces exactly.

Issuing also is simple because of the standard boxes. Quantity is known quickly because the stock man counts packages instead of individual pieces. He places the packages on a discharge conveyor system which takes them to the consolidating area.

**Moving them out.** Orders are staged before they're shipped. The parts arrive at order consolidation on conveyors. A stock man consolidates orders into palletized unit loads. Lift trucks load them on trucks at the same dock where parts are received. Outgoing parts may go to the manufacturing plants, to field offices, to supply depots, in fact, anywhere in the world. ♦



## How they're warehousing

**1** TWO AIR-INFLATED WAREHOUSES each hold 30,000 passenger tires and lower storage costs as much as 80 percent for B. F. Goodrich Co., Los Angeles.

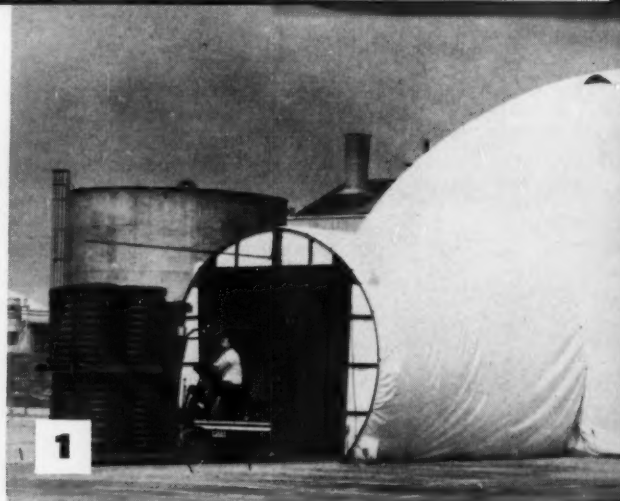
Each contains 226,195 cu. ft. and measures 180 feet long, 60 feet wide, and 30 feet high, is shaped like a quonset hut with round ends. Both warehouses were ready for service in only two days. Goodrich says the air-inflated warehouses meet the tire industry's big needs for plenty of cheap warehouse space when inventories of tires are being built to meet retail sales peaks.

A 3-horsepower electric motor drives a 30-inch fan continuously, keeping each warehouse inflated at  $\frac{1}{2}$  lb. pressure per square foot. An auxiliary gas engine will maintain the same pressure.

The material is airtight and watertight, 6-ounce nylon fabric coated with Geon vinyl resin. S. I. Warner, manager of sales-service for Goodrich, who thought of using the air house for a warehouse, says he may keep them where they are for seven years and for at least two years. The two houses cost \$25,000, were made for Goodrich by CID Air Structures Co., Chicago. Goodrich is also using air houses for tire storage in Kansas City, Mo. and Columbus, Ohio, is considering them at other major distribution centers.

**2** A BATTERY of retractable shelters provide weather protection and speed the loading and unloading of freight cars at General Electric Co., Glendale, New York.

This plant often had a problem in bad weather. Several doors frequently were opened at the same time to load freight cars. They were plagued with drafts, there was waste of fuel, and floors became slippery. Cartons were exposed when conveyed across the open dock boards.



Dazzo Products, Inc.

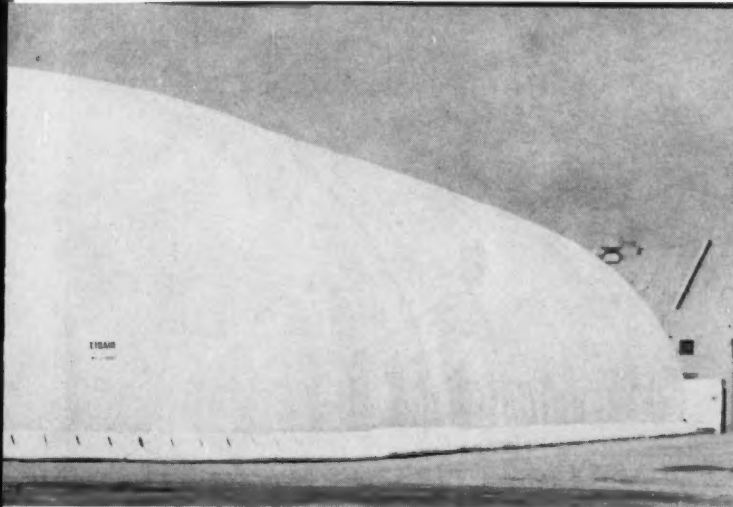
Now, simply by releasing some ties, the shelter expands automatically. Scissor arms fall open, form a weather-tight tunnel to the freight car door. A rope and pulley easily retracts the shelter, like a venetian blind. It forms a compact package around doors, extending only a few inches from the wall. Adjustable vanes take up the slack in the shelter roof, allowing for adjustment to suit variable widths of freight cars.

A special rainguard is vertically retractable, fits neatly inside of the freight car door, and catches the downpour from the freight car roof. The shelter is ready for use in less than a minute.

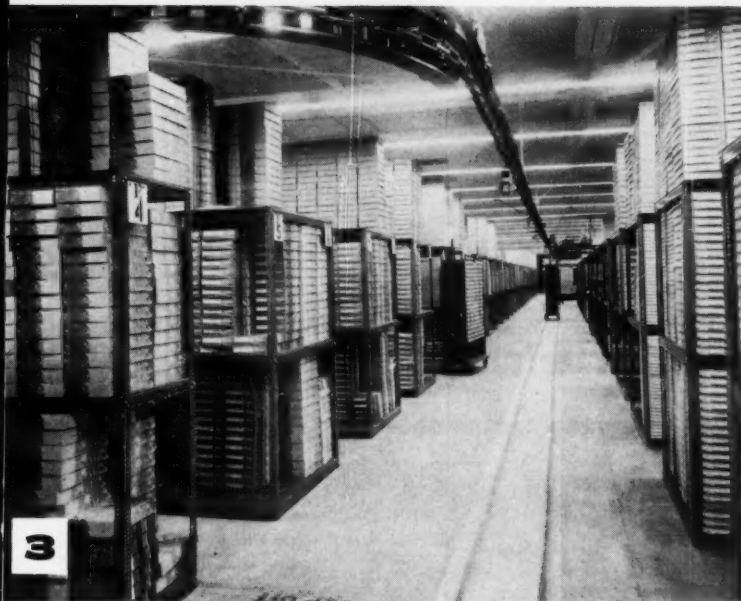
**3** It takes 19 miles of shelving to store the 4½ million swimsuits, sweaters, and the like, that Catalina, Inc. may have in its new Los Angeles warehouse at any time.

The warehouse serves 18 Catalina plants around Los Angeles. The 80,000 sq. ft. of shelf area demands





B. F. Goodrich Co.



Republic Steel Corp.



Behr-Manning Co.

only 15 people to run it and still hit the target of shipment with 48 hours.

The storage area is the second floor of the new building. It is 320 ft. long, 216 ft. wide, and 14 ft. high. There are 194 separate racks, arranged in five rows, and served by a continuous, trolley conveyor.

**Easy order picking.** Catalina has assigned a simple letter-number code to each row. Every item is consigned to a row by size, color, and style. (About 17,000 different items in 14 separate lines are manufactured each year). The home address of each item is stored in an electronic memory system.

The continuous trolley conveyor serves only the main aisles flanking the main rack battery. Order pickers load up their carts and roll them out from the sub-aisles to the main aisles, beneath the trolley. At this point, a pusher (there are 70) hanging down from the trolley track engages a mast extending upward from the cart, and pulls the cart with it. The trolley can move 120 carts an hour. The trolley also brings empty carts to the picking area.

**4** BEHR-MANNING, the coated abrasive and pressure-sensitive tape makers, had a sticky warehousing problem. They were storing rolls of treated paper that weighed a quarter ton each—but which were extremely prone to damage when stacked more than two high. So the warehousemen needed 8,000 sq. ft. of storage space just to take care of the unstackables.

Material handling expert Joe Tardi saw the potential saving here and moved in. He set up a system of drive-in pallet racks that cut the storage area down to 3,500 sq. ft.

Now the rolls arrive in lots of 48 and are palletized two per pallet. A fork lift truck then carries them into a section of rack and spots the palletloads on the rails. Each section holds three deep and four high. Wooden chocks on the pallets keep the rolls from falling off when they're being moved.

The system has other advantages besides space saving. Now rolls are easier to find, easier to move out of storage, and get damaged less often.



## Circulating

## carts remember their stops

By HENRY LEFER, Eastern Editor



Mechanical Handling Systems, Inc.

TOWLINE HANDLING has gone sophisticated at the Philadelphia Wholesale Drug Co.'s new headquarters and distribution center. There, 50 switch carts are pulled by an underfloor chain over a 1000-ft loop, and automatically switched off at 16 stations. These carts remember their destination even while recirculating.

Philadelphia Wholesale Drug is a cooperative buying organization serving about 1200 member pharmacies in Pennsylvania, New Jersey, Delaware and Maryland. The cooperative stocks about 20,000 items, and ships between 4000 and 5000 orders a week, with 10 cartons in an average order.

When the company planned its move from the old 7-story headquarters in Philadelphia to the brand new, 150,000-sq. ft. center in the suburb of Ft. Washington, management decided to take full advantage of the one-story layout in mechanizing the receiving-warehousing-shipping operations.

John G. H. Alberti, secretary of PWD, who administered the new installation, told MHE that although there was never any question during the planning stage that the new warehouse would be mechanized

and automated to some degree, this would be done not for novelty but for practicality. The under-floor towline system was chosen because it simplified construction of the building and did not introduce overhead obstructions or interfere with the lighting.

The system has proven itself, Alberti says, by providing a simple, fast way of restocking shelves, and allowing the company to make more efficient use of its manpower.

**How it works.** The merchandise, arriving mainly by tractor-trailer and truck, is received at the five-truck dock. Receiving books it and dispatches it to allocated areas in the warehouse. Case lots, on pallets, are moved to the case lot storage area on walkie lift trucks. Other lots go to the mixed case section, where the cartons are opened and the items separated according to shelf location.

The items for a single location are loaded on a special switching cart made by SI Handling Systems. Some carts have flat beds, others have shelves. The dispatcher drops a steel address pin in one of sixteen holes in a housing across the front of the cart. He then

positions the cart over the tow-chain slot in the floor and drops the spring-loaded tow pin into the slot. The underground chain engages the tow pin and moves the cart out.

Just before each sidetrack or spur, there is a spring-loaded tab sticking above the floor. The location of the tab corresponds with one of the 16 holes in the housing on the cart. When the cart reaches its addressed station, its pin is tipped as it passes over the tab, causing the tow pin to spring up and a guide pin to drop into the slot of the spur track. The spur is not powered, and the cart sits at the entrance until the next cart comes along and bumps it in.

**The cart remembers.** A spur will hold up to five carts, and cannot be overloaded. When the spur is full, the first cart causes the spring-loaded tab to depress, so it will not trip the switching mechanism of any following cart addressed to that location. Instead the cart recirculates until there is room. In this way, the address pin acts as a permanent memory until it is removed.

At the spur, the stockman raises the guide-pin and rolls the cart to the shelves for unloading. When he is finished, he places the cart over the conveyor track, drops the address pin in the receiving section hole, and drops the tow pin. The cart automatically returns to receiving for another load.

When orders are to be filled, the office sends a set of cards to the picking section and the case lot section, and a set of papers to the shipping dock so truck loading can be planned. These are transmitted from the office through pneumatic tubes.

The towline is not used for order filling, as many orders are too small to warrant tying up a cart. Instead PWD uses canvas baskets on conveyor belts. As the pickers fill their baskets, they send them on the belt to packing and shipping. ♦

*This MHE Guide to Warehousing completes the series of issues that began with the Guide to Receiving and Storing (January) and followed through with the Guide to In-Process Handling (May). Next year's special issues will include a Yard Handling Handbook Issue in April, and a Special Packaging Issue in November.*

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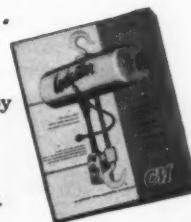
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# BULLETINS CATALOGS FILMS

## No Columns in Warehouses

Self-supporting roof-ceiling system provides flat roof that spans up to 350 ft. without column supports. With arched roof the column-free span is 1,000 ft. Gives you more storage and work space. Modular, pre-fabricated components make the system economical. Erection is easy. Combines readily with walls made of brick, stone, other materials, or you can use frameless wall designed on same system, with maker's doors and windows. Booklet shows how system works, includes pictures of warehouses and factories built according to Behlen system. Booklet, "Space Bridge," 2 colors, 8 p. *Behlen Manufacturing Co.*

Circle 301 on Reader Service Card

## Load Puller

New model of lever-and-ratchet manual puller weighs only 7½ lb., enables man to exert 3,000 lb. pull. Made extra safe: will take overload well above rating, and safety handle bends if stress approaches unsafe range. Literature also presents 2,000- and 1,500-lb. capacity models. *American Gage and Mfg. Co.*

Circle 302 on Reader Service Card

## Plywood Pallet Data

Packet brings you plywood pallet specifications, plans for making plywood pallets according to various de-



signs, case histories on use of plywood pallets and slipboards. Case histories describe use by warehouse, mail-order business, brewery, wholesale grocer. *Douglas Fir Plywood Association.*

Circle 303 on Reader Service Card

## You Can Do A Lot With Stacker Cranes

Visit many plants—via film—learn uses of stacker cranes you never thought of. You see cranes moving along the narrowest aisles to store skids of steel on high racks—you see these cranes handling big foundry ladles, even bigger foundry flasks—hauling huge, white-hot metal slabs from heat treat to the rolling mill—stacking palletized goods on racks. Includes many types of cranes. Simplest are controlled by walking operator using pendant control. Others carry operator on a control platform that moves with crane's fork or grab. Still others are remote controlled from a pulpit. "Stacker Cranes" is 16 mm., in color, runs 12½ minutes. To book a showing write on your letterhead to *Industrial Crane Div., All-State Engineering Co., 7050 N. 76th St., Milwaukee 23, Wis.*

## Wire Rope Conveyor Supports

If you hang your belt conveyor support rollers on horizontal wire ropes, (like the staves of a stave-and-rope hammock), you can install them in ½ the time you would take to put up a conveyor on a rigid frame. The advantage is greatest when you want to shift from floor supports to roof supports in a factory, or when you go across uneven ground, as outdoors or in a mine. Everything you need to know about wire-rope supported conveyors is told in Bulletin 173, 2 colors, 24 p. *Hewitt-Robins.*

Circle 304 on Reader Service Card

## Vertical Case Conveyor

New automatic vertical conveyor hoists cases at 70 f.p.m., can be set to make 10 stops a minute, automatically indexing at discharge level. May have 2 or more discharge levels for packages leaving unit. Handles

packages up to 15½ x 36 x 15 in., weights up to 180 lb. on each carrier. Data Sheet VL-4, 2 p. *Alvey Conveyor Mfg. Co.*

Circle 305 on Reader Service Card

## Attachment Advantages

"Pallet or Palletless?" gives you a quick but complete review of the advantages of using pallets, explains the advantages you get from an attachment method of handling. Action pictures of fork lift trucks using both methods. Folder, 2 colors, 8 p. *Automatic, Div. of Yale & Towne.*

Circle 306 on Reader Service Card

## Catalog of Conveyors

Binder brings you series of bulletins cataloging manufacturer's complete line of wheel, roller, belt, and cable conveyors. Fully illustrated, includes specifications. "Conveyors by Buschman," 80 p. *E.W. Buschman Co.*

Circle 307 on Reader Service Card

## Pallet Dollies

You don't have to wait for a lift truck to move a pallet a short distance when you use pallet dollies. These magnesium dollies are light, strong, easy to handle. Tilt and non-tilt types described in Specification Sheet. 2 colors, 1 p. *Brooks & Perkins, Inc.*

Circle 308 on Reader Service Card

## Carries Personnel, Cargo

Electric car weighs only 200 lb., carries one man, will tow 250 lb. load. Use, dimensions, specifications given in Folder 504, 4 p. *Namisco Inc.*

Circle 309 on Reader Service Card

## Compares Charging Methods

Data sheet summarizes advantages of motor-generators in comparison with rectifiers, as a means of charging storage batteries. Data Sheet 51-41, 2 p. *Motor-Generator Corp.*

Circle 310 on Reader Service Card

Continued on page 91

# READER SERVICE CARD

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## BULLETINS CATALOGS FILMS

### Always Room at the Top!

To use ceiling space, over-aisle space for storage, you can quickly assemble mezzanines from standard slotted angles, metal panels and planks. Bulletin, "There's always room at the top" shows how. Two colors, 4 p. *Dexion, Inc.*

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### Quick Guide to Casters

Manufacturer gives data on more than 200 sizes and types of casters, selected to fit needs of most users. Covers load capacity range from 125 lb. to 15,000 lb. Form 7161, 2 colors, 4 p. *Faultless Caster Corp.*

Circle 312 on Reader Service Card

### Closed Circuit TV

Explains automatic closed-circuit TV, how it's installed, how you use it to monitor conveyors and warehouses, how to handle maintenance. Pictures of representative installations. Both standard and high resolution (more detailed TV picture) equipment offered in Catalog 6-205, 2 colors, 8 p. *Kin Tel Div., Cohu Electronics.*

Circle 313 on Reader Service Card

### Chain Conveyor

Booklet describes a chain conveyor that can run flat, uphill, downhill, straight up or down, or upside down, and can make curves on a 6 in. radius. Carries 60 lb. per foot, but can be adapted to handle 120-lb. individual loads. Description of all components, typical layouts and installations in "Quality Overhead," 2 colors, 12 p. *Chainveyor Corp.*

Circle 314 on Reader Service Card

### Indice De Modelos

Spanish edition of "Selector Guide for Industrial Trucks". Describes, gives specifications for 150 "motoestibadores para uso industrial." includes motoestibadores de horquilla, patines para plataforma, para tarima, tractores, y aditamentos." *Automatic Transportation Co.*

Circle 315 on Reader Service Card

### Powered Platform Truck

Low profile and high capacity are important features of powered car-

rier. Bed is 9 ft. long, 5 ft. wide, handles 2-ton load. Powered by 60 h.p. gasoline engine. Folder shows photo of truck, dimensional diagrams, specs, details of mechanical components. Bulletin K 45-9, 2 colors, 4 p. *Kalamazoo Mfg. Co.*

Circle 316 on Reader Service Card

### Inventory Control

The average cost of carrying inventory is 17% of what you invest in the inventory—that is, if you have \$10,000 worth of material on hand, in a year it will cost you \$1,700 just to have it and handle it. In "Inventory Control Techniques" R. L. VanDeMark tells you how to find



out what your carrying cost is, and how to cut that cost. He gives practical methods—without difficult math—for setting lot size and re-order points, for improving control over inventory with less record keeping, for taking physical inventory faster, and for setting up workable inventory cost budgets. The book includes fundamental, proved techniques, and new, advanced ideas. It should be a manual for a beginner, a refresher for old pros, and a handy reference for everyone responsible for production and inventory control. "Inventory Control Techniques," by R. L. VanDeMark. (VanDeMark Inc., Box 120, St. Clair, Michigan. 116 p. Paperbound. \$4.75.)

### Conveyors

Portfolio presents whole "Elton" line of conveyors. Describes powered portable belt conveyors that handle packages, parts, bulk materials. Also stationary belt, roller, and wheel conveyors, and stands. Portfolio with bulletins, 18 p. *Chantland Co.*

Circle 317 on Reader Service Card

### New Angles on Slotted Angles

"Idea Book" suggests dozens of ways for using slotted angles, to build racks, bins, floor trucks, mezzanines. Also catalogs maker's shelving, drawers, drawer cabinets. Bulletin 307, 2 colors, 32 p. *Equipto.*

Circle 318 on Reader Service Card

### Four-Way Printer

Printer can mark 1, 2, 3, or 4 sides of your cartons, at speed of 35 cartons a minute. Designed to precede or follow any standard sealer. Heavy duty conveyor can move 1½-ton load continuously. Details and picture in specification sheet. 1 p. *Algene Marking Equipment Co.*

Circle 319 on Reader Service Card

### Floor Hardener

Technical information on penetrating epoxy coating for concrete and wood floors. Stops dusting of concrete floors, keeps wood from splintering, rotting. *Hallemite Mfg. Co.*

Circle 320 on Reader Service Card

### Electrical Code Bulletin

Comprehensive manual covers switches, circuit-breakers, lights, etc., required where hazardous materials such as benzene, gasoline, are used or stored. Gives electrical code, with explanation, and presents the hardware you use to meet code. Bulletin 2722, 2 colors, 60 p. *Crouse-Hinds.*

Circle 321 on Reader Service Card

### Safer Ladders

Bulletin describes safety features of wheeled extension ladder. They include outriggers, guard rails at both sides, pulpit-type guard around user, flat rungs at standing position, locking device to anchor ladder to ground, and leveling jack. Bulletin 159-1-560-30, 2 p. *Ballymore Co.*

Circle 322 on Reader Service Card

### Portable Winch-Hoist

Unit weighs only 60 lb., can lift 2,500 lb. or pull 5,000 lb. Includes mounting frame, drum, gear-reducer, motor, and switch. For 110-v. a.c., or to work from 6-v. or 12-v. battery. Mounts anywhere with just 6 bolts. Described in Bulletin M-61, 6 p. *City Engineering Co., Inc.*

Circle 323 on Reader Service Card

### Gravity Conveyors

Comprehensive catalog brings you information about roller and wheel gravity conveyors. Suggests applications that solve conveying problems. Provides data for determining correct pitch, capacity, curve width, etc. Shows parts and accessories, also use of units in live storage racks. "Roller-Gravity," 48 p. *Lamson Corp.*

Circle 324 on Reader Service Card

Continued on page 93



## MOTO-TRUC

### offers 3 different narrow aisle stackers ...walkie or rider

Which one does your stacking job best?

1. Outrigger type safely stacks heavy loads ceiling high from narrow, 6' aisles.
2. X-Tend-R combines fork-truck flexibility with space-saving features of outrigger unit.
3. Side-loader moves long loads like carpets, pipe, bar stock lengthwise down narrow aisle

only 24" wider than truck and load . . . stacks sideways.

There's a just-right Moto-Truc walkie or rider for your volume stacking operation. Initial cost is low . . . so is maintenance. And they're dependable and ruggedly built for years of economical service. See your Moto-Truc man.



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## BULLETINS CATALOGS FILMS

### Luggage Handling

Folder describes conveying system that handles luggage fast but gently at Montreal airport. Bulletin MIA 561, 2 colors, 6 p. *Mathews Conveyor Co.*

Circle 325 on Reader Service Card

### Drive-In Rack Systems

Bulletin explains applications of FILO (first-in-last-out) and FIFO (first-in-first-out) drive-in pallet rack arrangements. Shows how drive-in racks can be set up using 4 basic parts. Bulletin 111, 3 colors, 4 p. *Bernard Gloekler North East Co.*

Circle 326 on Reader Service Card

### Automatic Order Picking

"Full Conveyor Order Picking Control" tells all about an automated material control system using the principle of having cartons go from live racks to "reserved spaces" on the conveyors. Explains how system works, control components used, and engineering help offered by maker. Bulletin GEA-7219, 2 colors, 8 p. *General Electric Co.*

Circle 327 on Reader Service Card

### For Freight Handling

Like a gantry crane on wheels, one of these big carriers can pick up a piggyback trailer, set it on the straddled flat car, then move on to load the next car. Handles trailers, containers, or unit loads 40 ft. long weighing 40 tons. "Travelift for Freight Handling" shows pictures, gives specifications for standard models. Form 102-61-1500, 2 colors, 4 p. *Travelift Div., Drott Mfg. Corp.*

Circle 328 on Reader Service Card

### Safety Stairs

Safety stairs assemble like storage racks, without nuts or bolts. Excellent for storage mezzanines, truck dock steps, etc. Catalog sheet gives dimensions, ordering information. Bulletin 110, 2 colors, 2 p. *Bernard Gloekler North East Co.*

Circle 329 on Reader Service Card

### Warehouse Scales

Shop in this catalog to find the type of self-contained scales your operation needs. Choose from 4 cabinet dials, 6 pillar dials, 5 platform sizes, and either metal box or skele-

ton-frame construction. You can also get accessory for automatic printing of tare to make an error-proof, permanent record. Bulletin 8003, 2 colors, 12 p. *Fairbanks, Morse, & Co.*

Circle 330 on Reader Service Card

### Unique Overhead Conveyor

Booklet explains advantage of overhead conveyor trolley that has a third wheel turning in a horizontal plane. Diagrams, pictures show what you can do with this type of conveyor. Includes section on power-and-free installations. Tells how you can use this design inverted to move material on roller conveyor or chute. "Trimming Overhead," 2 colors, 28 p. *Hapman Corp.*

Circle 331 on Reader Service Card

### Standardized Belt Conveyors

Booklet covers standardized belt conveyor units, 9 ft. to 99 ft. long, 18 in. to 36 in. wide, capacities to 500 tons an hour. Gives charts to show bulk material classifications, capacities, and belt speeds. Includes detailed specifications, prices, plan drawings of 3-10 h.p. and 15-30 h.p. terminals. 11 p. *Finco, Inc.*

Circle 332 on Reader Service Card

### Monorail Manual

"Material Handling with Monorail" tells you about the history, components, and uses of monorail conveyors and cranes. In glossary, line drawings clarify terms used to describe components. Pictures suggest many ways to use monorails. Booklet M-1, 2 colors, 24 p. *Monorail Manufacturers Association.*

Circle 333 on Reader Service Card

### Modular Racks

"How to Win the Race for Storage Space" explains modular design of rack components, suggests ways to use racks to get maximum use of storage space without losing accessibility. Also shows new rack parts designed for drive-in and drive-through racks. *Acme Steel Co.*

Circle 334 on Reader Service Card

### Floor Finish Lasts Longer

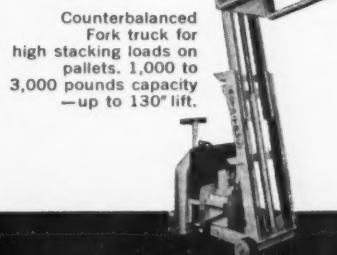
Two to three times longer life from floor finish in areas exposed to extreme traffic and abrasion is promised for urethane coating. Literature tells what it is, what it does, where to use it, how to apply it to wood and concrete. Bulletin 61.129, 2 colors, 2 p. *G.H. Tennant Co.*

Circle 335 on Reader Service Card

Continued on next page

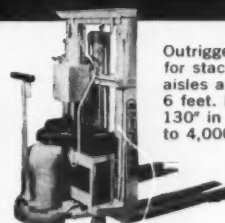


Low lift pallet truck for horizontal handling of loads on pallets. 4,000 and 6,000 pounds capacity.



Counterbalanced Fork truck for high stacking loads on pallets. 1,000 to 3,000 pounds capacity—up to 130" lift.

## MOTO-TRUC Walkie Trucks



Outrigger pallet truck for stacking from aisles as narrow as 6 feet. Lift to 130" in capacity—up to 4,000 pounds.



Tractors for all towing jobs with draw-bar pull to 700 pounds. Models to handle trailers, live or semi-live skids.

Write for free Moto-Truc "walkie" catalog... ask for Bulletin No. 56W.



World's Largest Manufacturer of "Walkie" Trucks

## The MOTO-TRUC Company

12403 Taft Ave., Cleveland 8, Ohio  
Circle 93 on Reader Service Card



## Quik-Pik® SLASHES ORDERPICKING COSTS!

LIVE STORAGE —  
GRAVITY SHELVING

- Cuts Picking Distance
- Segregates Picking — Restocking
- Saves Space
- Speeds Selection
- Rotates Stock
- Tightens Inventory Control
- Adjusts to Changes



ORDERPICKING AT RAYTHEON



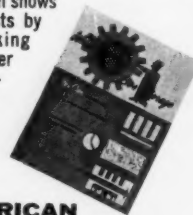
Now ... both  
**ROLLING TRACK**  
(Rolla - Trak)

and

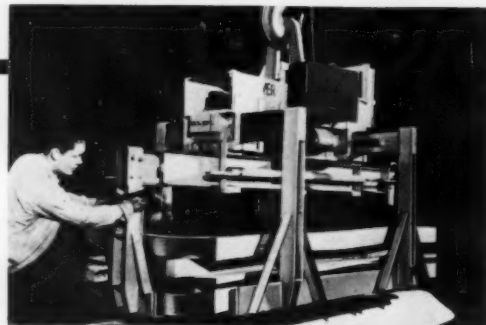
**SLIDING TRACK**  
(Easi - Flo)

Quik-Pik® does the trick!

Send for new 12 page, fully illustrated manual which shows how you can cut costs by cutting order picking frontage, cutting order picking TIME and MOTION and making full use of order picking frontage.



**NORTH AMERICAN  
EQUIPMENT CORPORATION**  
200 KEEN STREET, PATERSON, N.J.



## CUT HANDLING COSTS—INCREASE SAFETY WITH MANSAYER® GRABS

Mansaver motor-driven sheet grabs provide fast, safe, one-man operation and are available with or without end hooks. The style 1456, illustrated, includes a patented Mansaver feature, motor-driven end hooks, which permit handling a wide range of sheet lengths and widths of all gauges.

For further information, or a prompt quotation, send us your load and operational specifications. For increased profits with increased safety, turn to Mansaver Industries, grab specialists for close to a half century.

**MANSAYER**   
**INDUSTRIES, Inc.**

3103 East St.,  
New Haven, Conn.



Also Manufactured in England by George W. King Co. and in France by Ets. Dujardin et Cie.

Circle 87 on Reader Service Card

## BULLETINS CATALOGS FILMS

### Self-Loading Dolly

Working on a new principle, this self-loading dolly slides under bulky cases, crates, and boxes even when they have no clearance, and no handles or projections to hook. One man picks up 1,000-lb. loads easily. Bulletin shows how, with pictures. "No Ground Clearance," 2 colors, 2 p. Stokvis-Multiton Corp.

Circle 336 on Reader Service Card

### Wrapping-Strapping System Saves Labor, Protects Product

New film shows operation of an assembly-line packaging station for wrapping and strapping skids of paper. With new compression strapper 2 men do the job in half the time it formerly took 3 men. Film shows whole process: Skids reach wrapping station on roller conveyor; there 2 men drape wrap over paper. Conveyor then moves skid to compression strapper run by one of the two operators; only one operator is needed for strapping because "sabre" feeder passes strap through notches in skid runners. Other operator meanwhile prepares wrap for next skid. Strapper applies 10 tons compression, a pressure determined by research as right for protecting paper in transit. Film is 16 mm., sound and color, 22 minutes running time. If you would like to view it in your offices, or book a print for showing before your company personnel, write to: Signode, 2600 N. Western Ave., Chicago 47, Ill.

### Office Conveyor

Move documents such as orders, bills of lading, etc., from desk to desk, office to office on conveyors—it speeds processing. Bulletin explains conveyor designed to do it. Bulletin 500, 4 p. Mercury Industries, Inc.

Circle 337 on Reader Service Card

### Shelving, Bins, Racks

Detailed catalog of steel shelving, bins, bin dividers, drawers, and

Continued on page 95



## These "Super-Snoopers" Save Industry Millions of Dollars Each Year...

"Super Snoopers" are "Cost Detectives" who can help you ferret out wasted waste dollars. In reality they are Dempster-trained waste and refuse engineers who offer a free consultation and survey service to industrial plants (large or small) without obligation of any sort. These men are abreast of the latest breakthroughs in waste storage and collection and make hundreds of surveys and consultation calls each year, resulting in millions of dollars in savings. Sometimes a minor improvement, such as an inexpensive chute or conveyor, can mean thousands of dollars saved. Or, a few containers rented from a private hauler can effect big savings. There is a Dempster-trained engineer near you, and this consultation service is yours for the asking . . . so why not write today?



To: Dempster Brothers, Dept MH-11  
Knoxville 17, Tenn.

- ☐ Please send details of consultation service  
☐ Please send Catalog Brief 160

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

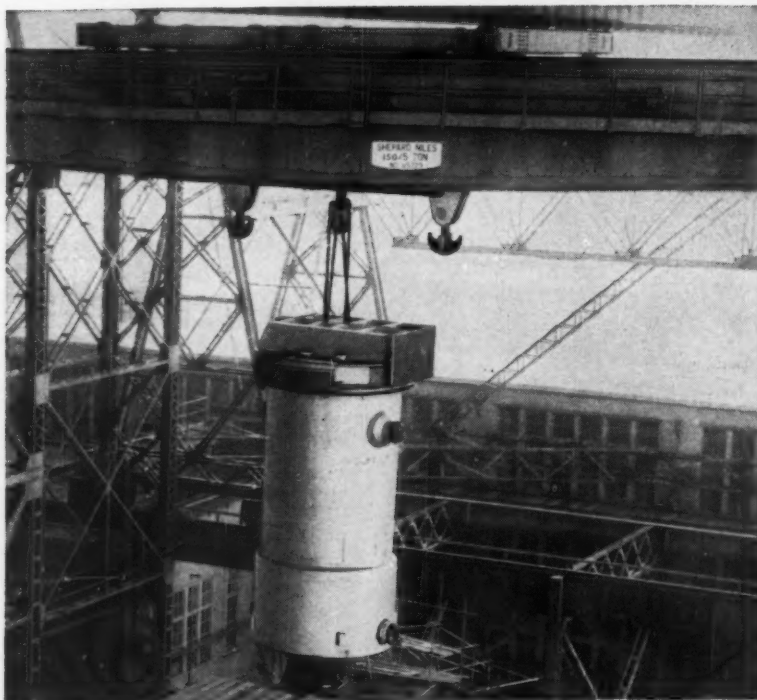


Dept. MH-11 DEMPSTER BROTHERS, Knoxville 17, Tenn.  
Inc.

Circle 37 on Reader Service Card

**DEMPSTER**  
SYSTEMS

# 22-year-old Shepard Niles Job-Mated Crane is as good as new



Installed in 1939, this 150-ton Shepard Niles JOB-MATED Crane, with auxiliary hoist, was used to lower the nuclear reactor into the hold of the world's first atomic-powered freighter, the N.S. Savannah. Reactor was lowered (with only 2 inches to spare at the sides) ¼-inch at a time for the last four inches. (Photo courtesy of New York Shipbuilding Corp., Camden, New Jersey, subsidiary of Merritt-Chapman & Scott Corp.)

This Shepard Niles QUALITY Job-Mated Crane contains Shepard Niles-designed and -built components. We don't say these components won't wear out. Eventually, they will. But you'll find, as have many of our customers, that the extra years of service they give more than offset their initial cost. No matter how long you use a Shepard Niles Job-Mated Crane, replacement parts are always obtainable. You make the choice as to how many years you want to operate it; the decision won't be made for you by early breakdowns, loss of efficiency, or lack of replacement parts.

A Shepard Niles Job-Mated Crane is just what you need for your load-moving operation. For the complete story, ask to have a Shepard Niles representative call at your convenience, or write for our descriptive bulletin.



Member of Electric Overhead Crane Institute

America's Most Complete Line of Cranes and Hoists

## SHEPARD NILES

CRANE AND HOIST CORPORATION

2766 Schuyler Ave., Montour Falls, N.Y.

Circle 117 on Reader Service Card

## BULLETINS CATALOGS FILMS

closed racks for storage. Interesting item: lightweight casted racks for vertical storage of long, thin tubes, such as map tubes. Full specifications, dimensions on all items. Catalog 300, 28 p. *Frontier Mfg. Co.*

Circle 338 on Reader Service Card

### Combine Power & Free

By combining power and free overhead conveyors you automatically direct and recall the materials you handle, so you have a system that controls material flow. Folder clearly illustrates components, actual installations, and typical layout. Form 2365, 2 colors, 6 p. *Rapistan-Keystone Inc.*

Circle 339 on Reader Service Card

### Scrubs 20 Times Faster

One new floor maintainer will clean your floors faster than 20 men with mops. Scrubs, picks up dirt and scrubbing solution, and dries, in one operation. It is self-propelled, and may be powered with electricity, gasoline, or propane. Description, picture, specs in Form 588, 2 colors, 2 p. *Clarke Floor Machine Co.*

Circle 340 on Reader Service Card

### Transmission Maintenance Manual

"Servicing the Clarklift Hydratork\*" tells how to tear down, overhaul, and re-assemble torque converter and transmission. Also gives trouble-shooting hints. It goes with a slide film which Clark provides on the same subject. This 68-page manual includes 196 photos and cutaway drawings showing maintenance operations step by step. Get it from Clark dealers, or from: *Manuals and Statistics Dept., Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich. \$1.50.*

\*Reg. T.M.

### Racks for Warehousing

You handle and assemble only 2 basic parts to set up new pallet rack—no bolting, no welding. For heavy and light materials. Installations illustrated in Bulletin, "Series 58," 2 colors, 4 p. *Palmer-Shile Co.*

Circle 341 on Reader Service Card

Continued on page 98

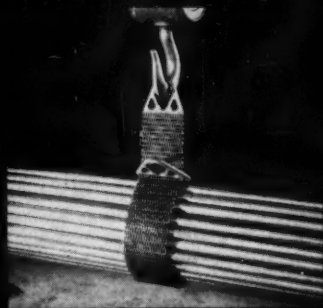
MATERIAL HANDLING ENGINEERING



This  
**"SPIRAL  
 OF  
 STRENGTH"**

Pat. App. For

helps make  
**GRIPPER<sup>®</sup>  
 SLINGS**  
 safer, stronger, more  
 versatile than any other  
 sling on the market



**Mail the coupon today for full  
 information or a demonstration.  
 Or, contact your nearest Gripper  
 Sling representative**



On the Gripper Sling, there is a stainless steel spiral that connects the new, slim, strong Gripper Sling handle with the metal-mesh body of the sling. This free-floating spiral is a distinctive feature of the Gripper Sling, and it is your assurance of a stronger, safer, more useful sling.

**Stronger**—because this stainless steel spiral gives 30% more wear resistance, 66% more tensile strength than carbon steel.

**Safer**—because the spiral is wound through the handle, not welded to it. The handle hinges freely back and forth, and since there are no welds, there are no breaks where the sling body meets the handle.

**More useful**—This new handle design and non-welded connecting spiral means there is more sling fabric on any given length of sling to grip the load when the sling is used in a choke hitch.

Gripper Slings, pre-tested and guaranteed, are available in standard widths and lengths for capacities up to 100,000 lbs. For handling delicate loads or polished stock, ask about PVC or Neoprene-covered Gripper Slings.



**THE CAMBRIDGE WIRE CLOTH COMPANY**

Department W, Cambridge 11, Maryland

- ☐ Please send Gripper Sling Catalog and my distributor's name  
☐ Please arrange a no-obligation demonstration

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

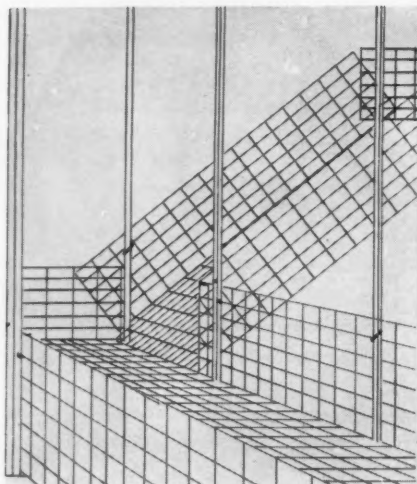
Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



Circle 16 on Reader Service Card

**Your Own Employees can easily install these conveyor guards**



## WIRE-SHIELD

**Ready-to-install Conveyor Guards**

Installation of WIRE-SHIELDS is fast, easy and inexpensive. Unskilled labor can install them without special tools. Pre-assembled 8 foot sections in choice of widths and heights are helixed together, forming a sturdy, lightweight protective channel for conveyors. Used on slopes, corners and straight runs. WIRE-SHIELDS are reusable and fold for storing. Shipped with non-corrosive aluminum finish, including pre-cut helixes and hanger clips.

Write for  
FREE  
Literature



**SPRINGPORT**  
**STEEL Products Co.**  
SPRINGPORT • MICHIGAN



11

## BULLETINS CATALOGS FILMS

### Charts Compare Cushioning Materials

Charts show properties of new, foamed plastic cushioning material, and of latex, sponge rubber, urethane foam, vinyl, rubberized hair, and fibrous glass. Includes results of drop tests, data on density, energy absorption. *Pac-Tron, Inc.*

Circle 342 on Reader Service Card

### Automatic Computer Programming

Manual describes specifications for Translator-Assembler Compiler system used with Philco 2000 computer. TAC is an automatic programming system which produces machine code from programmer's symbols. 26 p., *Philco Corp.*

Circle 343 on Reader Service Card

### Hand and Electric Elevators

Hand- and electric-powered 2-post portable elevators can raise and stack pallets, skids, barrels, bags, and cases to ceiling height. Telescopic types for high lifts. All portables hand-propelled on heavy-duty wheels. Maker also offers portable cranes, 4-post and floor-to-floor stationary elevators for industrial use. Bulletin 605 includes form for requesting quotation. *Barrett-Cravens Co.*

Circle 344 on Reader Service Card

Continued on page 100

**The Economical Way To Give Your Dock Year 'Round Protection**

## FROMMELT RAIL DOCK SHELTERS



- SPRING-LOADED ACTION PERMITS "ONE MAN OPERATION IN SECONDS" . . . AUTOMATICALLY!
- Heavy, Rust-Resistant Galvanized Steel Frames Guarantee Years Of Trouble-Free Operation!
- Covers Of Fro-Prene — UL Approved Duck, Are Fire Resistant, Mildew-Proof, Tough and Serviceable! Models Include Regular Rail — Fully Recessed Model Within Door Opening—Between Car—Portable Rolling—Rigid Rolling and Dock Curtains and Track.
- Write Today For Our Free New Catalog.



FROMMELT INDUSTRIES, INC.  
Dubuque, Iowa



Circle 52 on Reader Service Card

# MATERIALS-HANDLING NEWS

NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS

## SPEED, FLOORS, OPERATING CONDITIONS DETERMINE CASTER LOAD CAPACITY

*may modify catalog ratings*

**Wheels can give you more  
if you pick them right**



"H99" with  
"Alcore" wheel.  
"Atlasite" hard  
tread wheel  
(non-marking).

Don't, for instance, expect a rubber-tread wheel to carry the same load as a metal or hard tread composition wheel of the same size. The rubber tread wheel can be counted on to carry about half as much.

Take the popular Bassick "H99." With a 2" tread semisteel wheel 6" in diameter, this caster is load-rated at 750 pounds per caster. The same caster with a Bassick "Alcore" aluminum cored rubber tread is load-rated at 410 pounds. (Tire & Rim Ass'n Rating, and Caster & Floor Truck Mfgs. Ass'n Standard.)

Then, too, for equal loads on equal floor surfaces soft rubber tread wheels will be harder to roll and swivel than an otherwise equivalent caster with steel or hard tread wheel.

Soft treads *do* give the advantages of increased floor protection and less noise. And a hard composition wheel like Bassick non-marking "Atlasite" can give you almost the carrying capacity of steel wheels with a great deal more protection to floors.

### DID YOU KNOW

... that roller bearings do *not* increase load carrying capacity? But they do give easier starting and easier rolling under maximum loads.

When ordering casters from the load capacity data given in catalogs, you must consider such variables as operating speed, condition or type of floor, and whether operation is to be manual or power pulled.

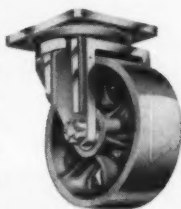
All of these may modify the published load ratings given on a caster or a certain type of wheel. The catalog data can only be an approximation.

### DO YOU NEED A "RACE HORSE" OR "BULL ELEPHANT" CASTER?

Sometimes in caster selection you can trade speed for load carrying capacity ... and vice versa ... and sometimes with judicious planning you can get a moderate degree of both speed and power. For instance:

This 10" Series "93" caster is a real "bull elephant." On static load it can stand up safely under 60,000 pounds. At the moderate speeds at which it is designed to move, Bassick rates it at 15,000 pounds. You wouldn't expect this caster to do the job of a "race horse" properly, and it won't.

On the other hand, here's a 10" Series "TS" caster that's specially designed for carrying power-pulled loads at 5 to 10 miles an hour—trailer usage—high speeds for a caster. Load capac-



Bassick—with a reputation to maintain as the world's largest caster maker—protects customers by making its ratings conservative. However, you should keep in mind the elementary facts on this page. In cases of doubt, submit full details on loads, operating conditions, speed, type of equipment to Bassick and ask for recommendations. We will be glad to supply them.

ity under these conditions: 2,500 pounds per caster, with semisteel wheels. Bassick "Floating Hub" casters may be obtained for even higher speeds.

### FLOOR CONDITIONS MAKE A BIG DIFFERENCE

If floors are fairly free from roughness and obstacles, you need not worry too much about moderate overloads. Bassick's conservative ratings allow a substantial safety factor. For instance, the 6" semisteel-wheeled "H99," though rated at 750 pounds, would safely carry 1000 pounds if overloaded by a careless workman.

However, if operating conditions are rough, use casters and wheels rated above the maximum loads anticipated. In addition, select a wheel large enough to ride easily over obstacles (Bassick "Floating Hubs" help here, too). The larger the wheel the easier it will roll.



"Floating Hub"  
caster

### SEE YOUR BASSICK DISTRIBUTOR

... he can solve most of your caster problems on the spot ... and he stocks Bassick casters for immediate delivery.

1.44

THE  
BASSICK COMPANY  
BRIDGEPORT 5, CONN.  
IN CANADA:  
BELLEVILLE, ONT.



STEWART-WARNER CORPORATION

Circle 8 on Reader Service Card



**You can even read this scale around corners—up to 100 ft. away!** *only Martin-Decker has this Eye-Level Remote Indicating Crane Scale!*



Minimum headroom requirement gives you more stacking space • Full 360° dial makes indicator easier to read, more accurate • Exclusive sensater-type load cell eliminates surface friction • Full tare adjustment to manually zero out boxes, baskets, hooks, etc. • High safety factor—ultimate strength more than 5 times rated capacity. Dial crystal is shatter resistant optic plastic • All scales available in metric calibrations.

Write for Technical Brochure T1611

The standard Martin-Decker Sensater Crane Scale has all of the precision features of the remote model.

**MARTIN-DECKER**

36 Models with capacities from 500 lbs. to 60,000 lbs.

**M D** Precision Pressure Instruments Testing—Weighing—Load and Force Measurement

MARTIN-DECKER CORPORATION • 3431 Cherry Ave., Long Beach 7, Calif.

## BULLETINS CATALOGS FILMS

### Towline Conveyors for Freight

Folder describes economies gained by using towline conveyors to handle freight in western truck line terminals. "Trucking Terminals Utilize Automation," 2 colors, 4 p. Jervis B. Webb Co.

Circle 345 on Reader Service Card

### Pneumatic Tired Lift Truck

Model C-20 Fork lift has pneumatic tires on drive wheels, cushion steer tires. They help you when floors are rough, and for outdoor operation. Truck is gas-powered, has ton capacity at 24 in. Specifications, dimensions, chart of grade and drawbar pull in Bulletin SS-2065, 2 colors, 4 p. Clark Equipment Co.

Circle 346 on Reader Service Card

### Racks Display, Handle, Store Rolled Fabrics

Rolls of carpeting, cloth, plastics stored and handled easily on Trak-Rak. Standard racks have capacity for rolls up to 15 ft. long, weighing 750 lb. each. Rolls can stack 6 high. Racks travel on overhead track or floor casters. Specifications, floor layouts, accessories, and pictures of typical installations in Bulletin TRD-111, 2 colors, 8 p. Floor Covering Equipment Co.

Circle 347 on Reader Service Card

Continued on page 102

*when you look for dockboards*  
**COMPARE SIZE ... COMPARE PRICE**  
*... COMPARE CAPACITY with*

**Langsenkamp's DOCK PLATE**

**LIGHTWEIGHT—LOW-COST**  
**SUPER STRENGTH**  
**ALUMINUM**

#### GREATER CAPACITY PLUS ECONOMY!

Langsenkamp gives you an economical dock plate with greater work-load capacity to handle today's increased pay-loads.

**It doesn't get tired!** Special alloyed-aluminum has superior fatigue-resistance, giving Langsenkamp dock plates longer life.

**Handling ease**—Most sizes are so light in weight that one man can handle them easily.

**9 Styles ... capacities up to 15,000 lbs.** Over 65 stock sizes from 24 x 48" to 96 x 60" plus all popular options such as fork lift brackets, side rails and stop pins.

**Exclusive**—Optional abrasive safety surface gives permanent non-skid protection even when wet!

**F. H. LANGSENKAMP COMPANY**

6,500 lbs. <b>BRAND X</b> 24" x 48"	7,000 lbs. <b>BRAND Y</b> 24" x 48"	8,500 lbs. <b>BRAND Z</b> 24" x 48"
---	---	---

**12,000 lbs. Capacity - 24" x 48"**



*still as low as* **\$49<sup>00</sup>**

229 E. South Street  
Indianapolis, Indiana

Circle 81 on Reader Service Card

**AUSTIN-WESTERN PRODUCTS SAVE TIME AND MONEY**



## Safe, fast, profitable way to lift, carry or place any load in 5-ton range

It's Austin-Western's economical new 3-wheel hydraulic crane! This versatile Model 110 is your answer to the limitations of fork lifts and conventional 3-wheel cranes. Why? Because of its 18-ft. 7-in. telescoping boom and 220° swing. The 110 can actually outlift all other 3-wheel cranes over-the-side. Its low 8-ft. 10-in. overhead clearance and the easy maneuverability of its dual tire,

rear trunnion power steering permit it to work in even the tightest quarters with ease.

Other time and money saving features include dual front driving wheels; road speeds from 2 to 18 mph. Torque converter and full hydraulic reversing mechanism are standard. The 110 can be adapted to your particular job needs with various combinations of

features and equipment. And it's designed and built for easy, economical, troublefree maintenance.

Why not take a good look at this versatile new piece of materials handling equipment. Ask your Austin-Western distributor for a demonstration or write us for details.

**A-W hydraulic cranes are available in  
5 models; capacity ranges from 5 to 11 tons!**

# Austin-Western

CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

**BALDWIN · LIMA · HAMILTON**

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

Circle 3 on Reader Service Card





## New PALLETFLO CONVEYOR

Here's the simplest way to move pallet loads. Palletflo Conveyor is a wheel rail conveyor that handles all pallets—even those with broken or missing boards and protruding nails ride smoothly. Set at a pitch of 5/16" per foot, pallets move by gravity. On level runs, pallets are easily pushed along.

Height and pitch are fully adjustable. Standard parts make it easy to increase conveyor length. It's constructed to take it—with aluminum enameled rails and zinc coated steel frame members and guard rails.

You'll find many uses for Palletflo Conveyors in your plant or warehouse. It's an investment you'll be glad you made.

**WRITE FOR CATALOG #701**



**M-H STANDARD CORPORATION**  
515 Communipaw Ave., Jersey City 4, N. J., HE 3-5834

## BULLETINS CATALOGS FILMS

### Breakthrough in Conveyor Engineering

Research teams from the University of Pennsylvania investigated heavy-duty conveyors handling bulk materials, then developed new formulas that predict horsepower requirements consistently, accurately. New tables and charts cover speed and idler factors, pulley friction, drive factors, belt weights. These new data presented by sponsor of the study in Bulletin 175, 24 p. *Hewitt-Robins*

Circle 348 on Reader Service Card

### Wire Totes, Storage Racks

Catalog of wire baskets and toting fixtures, such as hanger for carrying 12 cherry pies. Also wire storage racks and shelving. All equipment tinned, chrome-plated, or stainless steel to resist corrosion. Specifications, dimensions, illustrations in Catalog 60. 2 colors, 32 p. *Metropolitan Wire Goods Corp.*

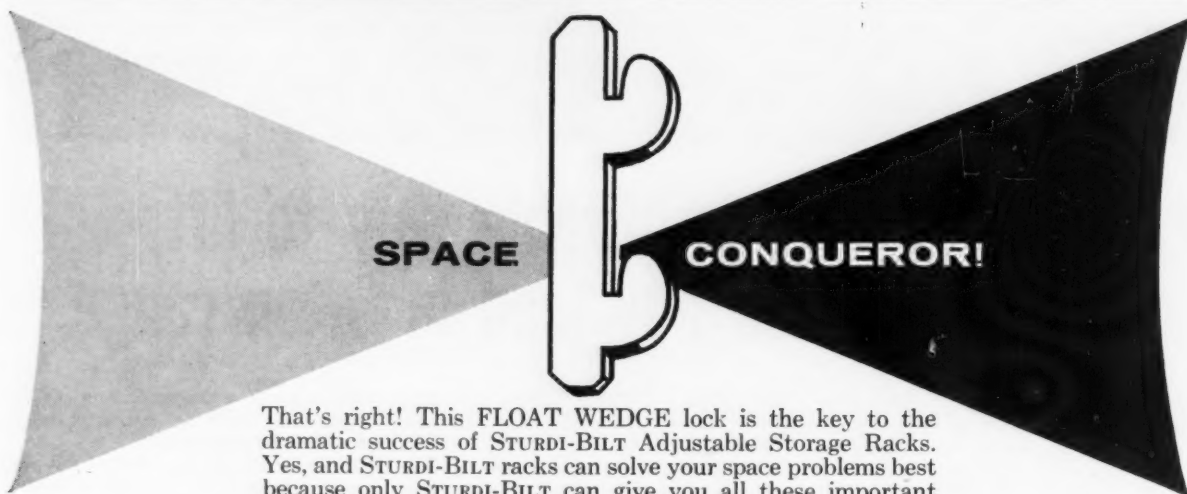
Circle 349 on Reader Service Card

### Material Handling in Foundries

Unique conveyors engineered for foundry use improve handling of molds, core boxes, sand, and castings. Booklet also presents special foundry equipment such as casting carts, drag flask return, flask stripper, and mold shakeout. Two colors, 28 p. *Nomad Equipment Corp.*

Circle 350 on Reader Service Card

Continued on page 104



That's right! This **FLOAT WEDGE** lock is the key to the dramatic success of **STURDI-BILT** Adjustable Storage Racks. Yes, and **STURDI-BILT** racks can solve your space problems best because only **STURDI-BILT** can give you all these important benefits:

- Complete adjustability
- Add-a-section versatility
- Unmatched safety and stability
- Fas., easy assembly
- Patented, **FLOAT-WEDGE** construction

And on top of all this, **STURDI-BILT** quality costs you no more. So why not get the best? Buy better—Buy **STURDI-BILT**.

SEND TODAY for full data, including a copy of the valuable **STURDI-BILT** Storage Planning Guide.



**STURDI-BILT** Material Handling Division

Union Asbestos & Rubber Company 332 So. Michigan Ave., Chicago 4, Illinois

Circle 125 on Reader Service Card







This mark tells you a product is made of modern, dependable Steel.

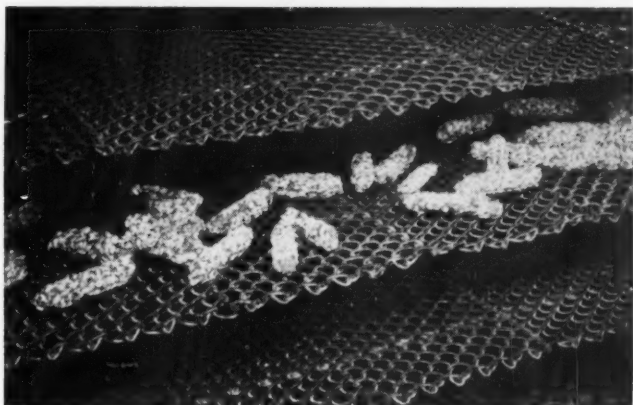
### Want to increase your production?

Vita Food Products, Inc., New York City, is putting out three times as many maraschino cherries with a USS Cyclone Belt and some new processing machinery. And they've done it without adding more personnel! They've found there's no breaking or oxidation with the Cyclone Belt—even after steady use in a submersion-type pasteurizer.



### Want to stop wasting time?

Curtiss Candy Company, Chicago, Illinois, cools over 1,000,000 Baby Ruth candy bars a week on USS Cyclone Conveyor Belts—while they're making them. There was a time when they had to put the candy on trays and wait for it to cool overnight. Some of the individual belts have lasted years with a minimum of maintenance.



### Want to save materials and manpower?

Ruberoid Corporation, St. Louis, Missouri, is completely sold on their Cyclone Conveyor Belt because it saves so much material and manpower in their asbestos-cement plant. They know they can depend on the belts to behave efficiently under difficult operating conditions. And they're very happy with Cyclone Belt flexibility and ease of maintenance.



## **USS Cyclone Conveyor Belts**

can be designed to move almost any kind of product faster for less money. Cyclone makes more types of metal conveyor belts than anyone else in the industry. One of our sales engineers can survey your operation—without cost to you—and tell you which of our eight basic belt types will meet your specifications. Get started now. Send the coupon for your free booklet on USS Cyclone Conveyor Belts.

*USS and Cyclone are registered trademarks*



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Division of  
United States Steel**

*Cyclone Sales Offices coast to coast*

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Rockefeller Building  
Cleveland 13, Ohio

Please send me your free booklet on USS Cyclone Conveyor Belts.

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City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

# Put Your Finger on Automation *FLO-Tronically*

Whether you are moving jet engines or jack knives . . . designing, building and installing modern material handling systems require experienced engineering. Controls, conveyors and other equipment must work together for the highest operating efficiency.

Now you can put your finger on modern Flo-Tronics control and systems engineering for:

1. Complete, ready-to-operate systems with MAG-PAC automatic controls . . . built . . . installed . . . tested . . . operating!
2. MAG-PAC automatic controls for your existing, enlarged, or new conveyors ready for installation by your men or ours.

Flo-Tronics makes instruments, components, and equipment to control all types of material handling. Whichever you choose, you'll be time and money ahead. Send your problem to Flo-Tronics today.

# MAGPAC

MAGNETIC PACKAGE CONTROLS

FLO-TRONICS, INC.  
1330 N.E. Quincy • Minneapolis 13, Minn.  
Phone: FEderal 5-7789

Circle 51 on Reader Service Card

## BULLETINS CATALOGS FILMS

### Tractor Shovel Specifications

Specification sheet for new tractor shovel shows two engine options, either 250 or 336 h.p. Diesels. Rated lifting capacity is 12 tons, and unit is furnished with 4, 5, or 6 cu. yd. bucket. Important feature: 9 ft. 3 in. wheelbase, to improve stability. Form 4042, 3 colors, 2 p. *Yale & Towne Mfg. Co.*

Circle 351 on Reader Service Card

### Figure Man-Moving Savings!

How much does it cost you to have supervisors *walking* around your plant? How much can you save if they ride? Bulletin "Here's How" gives you work-sheet for figuring the savings, shows how to use it. Two colors, 4 p. *Cushman Motors*

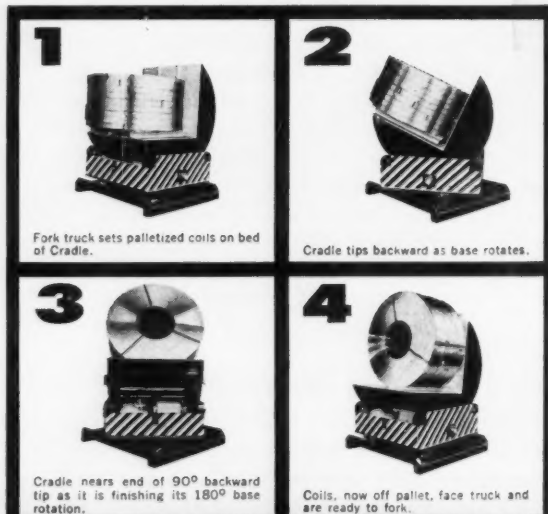
Circle 352 on Reader Service Card

### Saves Tractor Maintenance Time

"Avoid Delay the Modern Way" explains exchange-maintenance plan for assemblies on maker's equipment: you order a needed replacement assembly, at the same time turn in your worn or broken assembly. You get a guaranteed replacement at once, pay for it only what it costs to repair the assembly you turn in. You save time, may save money. Bulletin 3547, 2 colors, 8 p. *Caterpillar Tractor Co.*

Circle 353 on Reader Service Card

Continued on page 106



## TURNOVER CRADLE PALLETIZES AND DE-PALLETIZES COILS IN SECONDS

In as little as 14 seconds, one man and a fork lift or crane can up-end and remove coils from pallets with the automatic Turnover Cradle. This labor-saving device does the job six times as efficiently as older methods. To palletize coils, simply reverse procedure. Won't damage material. Send for illustrated brochure.

**turnover® cradle**

A Product of LA DEAU MANUFACTURING COMPANY  
2702 San Fernando Road, Los Angeles 65, Calif., CApital 2-8108

Circle 79 on Reader Service Card

MATERIAL HANDLING ENGINEERING

**"Our  
materials handling  
efficiency  
jumped 30%!"**



**Motorola "Dispatcher" 2-way radio ends lift truck "dead-heading" at Lennox Industries**

No wonder Tom McRae, Time & Methods Dept. Mgr., is enthusiastic about his new Motorola Industrial "Dispatcher" 2-way radio system. It has not only increased lift truck productivity to almost 100% efficiency, but will actually *pay for itself* in a few months! This fact alone is a tremendous boon to companies in highly competitive industries, such as Lennox, leader in the home heating and air conditioning field. But, Motorola bonuses do not stop here. Mr. McRae further reports that *three* radio-equipped trucks now do the work that formerly required *five*!

Can this kind of savings help you?

Why did Lennox specify Motorola? Three good reasons: 1) No mounting problems; the Dispatcher radio is the smallest mobile industrial radio available; 2) No special generators or batteries, because this radio needs only  $\frac{1}{8}$  the current required for other radios, and 3) Motorola's reputation for reliability.

Check for yourself. Talk to the man from Motorola, or write for literature on the Dispatcher radio.





**MOTOROLA**  
INDUSTRIAL

TRANSISTORIZED  
**dispatcher**  
RADIOPHONE

Motorola Communications & Electronics, Inc., 4501 Augusta Boulevard, Chicago 51, Illinois • A Subsidiary of Motorola Inc.

Circle 96 on Reader Service Card



IN CHILLY BLASTS...  OR POURING RAIN... 

**is your LOADING DOCK  
inside... or outside?**

There's a big difference . . . in fuel costs . . . in employee morale . . . in productivity of workers . . . in absenteeism due to colds or accidents . . . in protection of merchandise.

Only DAZZO Dock Shelters provide quick and full protection for dock operations in bad weather. Less than full protection is merely money wasted!

DAZZO Dock Shelters adjust themselves automatically to different dimensions of railroad cars or trucks. They expand in seconds by gravity, without use of springs. They retract out of the way when not in use.



Save money and grief . . . write for the facts about DAZZO Dock Shelters today!

**DAZZO PRODUCTS, INC.**

532 Park Ave., Brooklyn 5, N.Y.  
ULster 5-6641

## BULLETINS CATALOGS FILMS

### Floor Trucks Nest, Save Space

You can park 4 nine-foot-long towline floor trucks in a space only 15 ft. long, because they nest. Or you can get any other length, and have them nest within 2 ft. of each other. Pictures, specifications in "Thimble Space Saving Trucks," 2 colors, 4 p. *Kappen Sales Co.*

Circle 354 on Reader Service Card

### Power & Free Conveyors

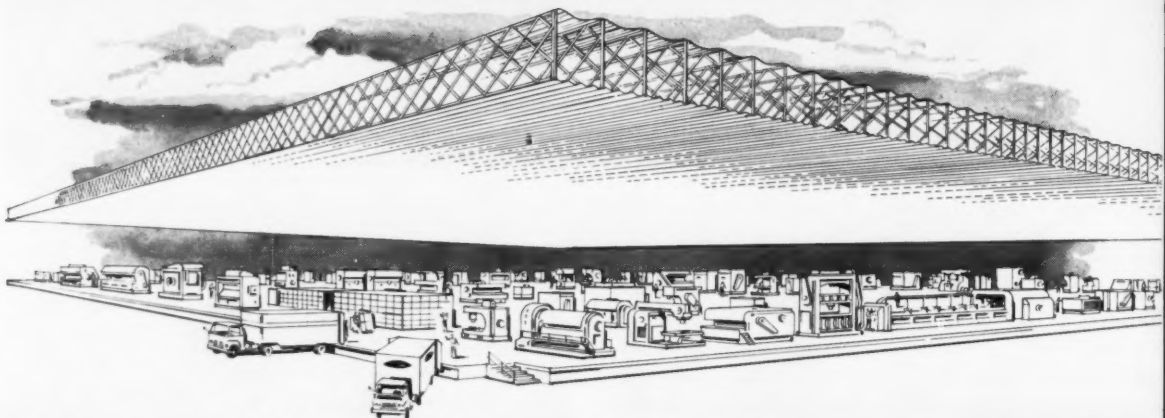
"Power & Free" tells how you can use a power-and-free overhead conveyor system, how it will fit your needs for automatic dispatching, live storage, supplying production operations. Includes system layouts, photos of installations, descriptions of components such as drive dogs, automatic switches, carriers, etc. Two colors, 6 p. *Chainveyor Corp.*

Circle 355 on Reader Service Card

### Fork Lift Handles 12 Tons

Specifications bulletin gives details on gasoline- or diesel-engine fork lift truck that handles 12 tons at 24 in. load center. Pictures explain construction features. (Other bulletins present 5, 6, 7½, 8½, 9, 10, and 11 ton trucks in same series). Bulletin TM-8, 3 colors 4 p. *Towmotor Corp.*

Circle 356 on Reader Service Card



## PLAN YOUR TRAFFIC FLOW FIRST

Efficient material handling starts with the floor plan. Forget about the roof and the walls. Lay out your traffic plan, assembly lines, storage and handling space—exactly as you need them. Plan on 50 to 1000 feet of clear-span space—any desired height.

Build for the present and the future, with complete space freedom with the new Behlen Panl System—a self-framing building—all steel with any combination of steel, brick, stone or cement walls. Easy to expand and maintain.

**DUBL-PANL™ ROOF CEILING**—the secret of Behlen's wide-span interior space. The top chord forms the roof, the bottom chord is the ceiling. Diagonal struts transfer vertical loads into axial stresses. Behlen roof-ceiling systems can be designed for any live-load requirement.

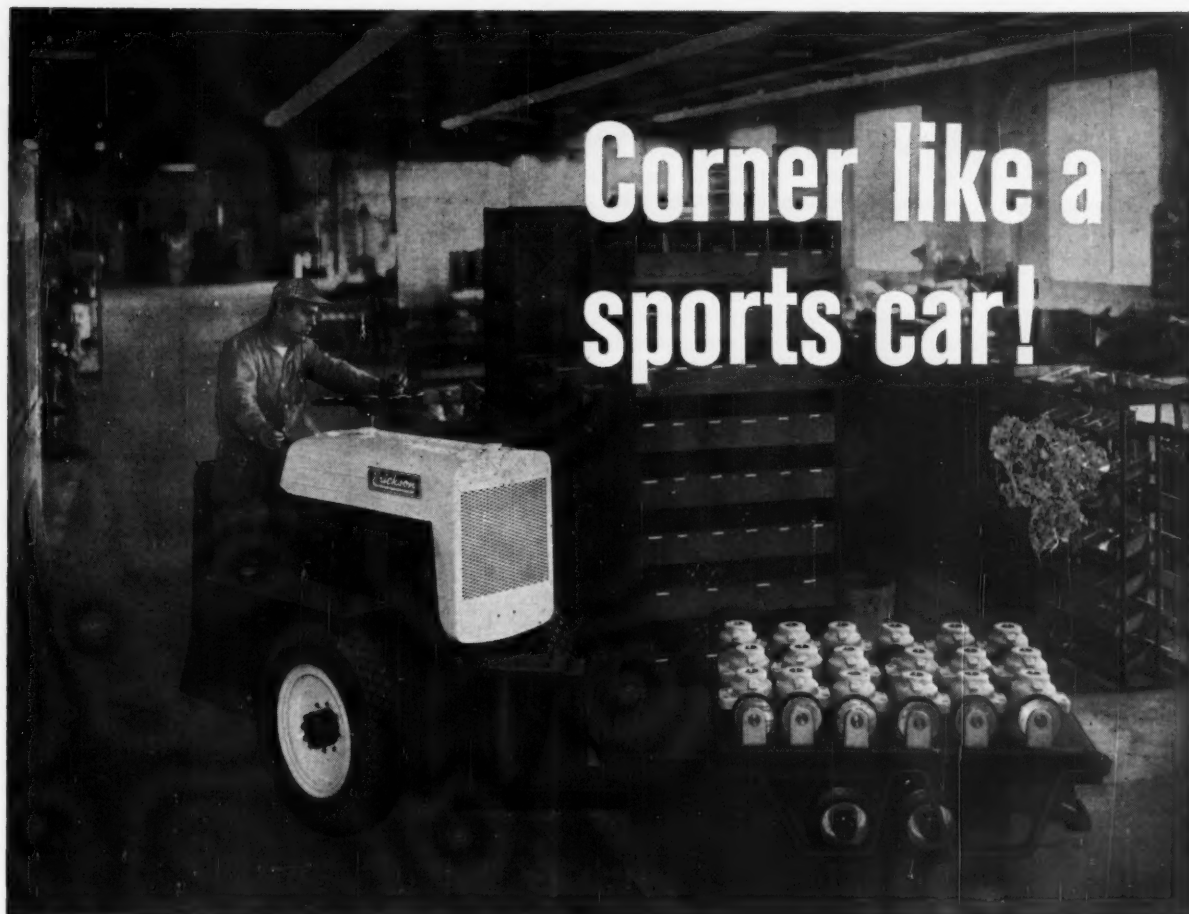
**Free Planning Service** We will send free literature and tell you how Behlen engineers can work with your building committee, architect and builder at no extra cost. Write,

Building Division, Dept. MH-11 Behlen Mfg. Co., Columbus, Nebraska

# BEHLEN



Circle 9 on Reader Service Card

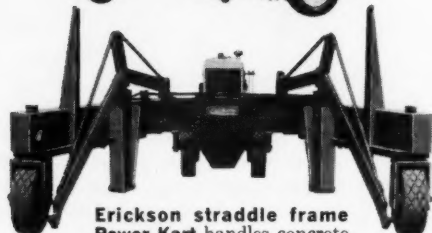


**Corner like a  
sports car!**

## **ERICKSON PLATFORM TRUCKS** with articulated steering



**Erickson scissor-lift Kart-**  
All raises the load platform  
to 10 feet or higher.



**Erickson straddle frame  
Power Kart** handles concrete  
structural members, other  
bulky and awkward loads.

Pivot in, pivot out. Snake the load platform under a pallet—lift and run with it down aisles too narrow for any other lift truck—corner 90° in a 90° radius to spot loads in any nook and cranny!

You can handle materials like that with Erickson platform trucks. The exclusive articulated pivot between load platform and tractor coupled with power steering gives you close quarter maneuverability no other truck can approach. Because the load is centered directly over the load wheels, no counterweight is necessary. This elimination of dead weight allows savings of up to 50% in initial cost and operating expense as compared with conventional fork lift trucks.

Erickson platform trucks can be customized to your needs with platform of almost any length and load capacities from 5,000 lbs. to 20,000 lbs. and higher. Write for complete, detailed information. Erickson Power Lift Trucks, Inc. 215 St. Anthony Blvd., Minneapolis 18, Minnesota.

# **ERICKSON**

*Customized Lift Trucks*

Circle 46 on Reader Service Card

# BARRETT MODEL HX

## Pallet Truck with proved differences



exclusive features make operation easier, increase maneuverability, add strength, cut in-use costs

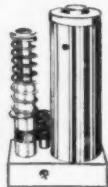
Look at the time-saving hydraulic pump and ram on this Barrett Model HX pallet truck. See and test the annoyance-ending "flying saucer" entry wheels that guide forks quickly into pallets. Check the extra strong, all-welded ribbed frame construction that means money-saving durability.

Add its other features and be convinced of its extra value:

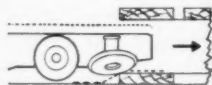
- Full 4½-in. lift—multiple stroke—5¾ in. underclearance, raised.
- Overload by-pass valve—factory-sealed, operates automatically to protect truck from damage.
- Spring-controlled foot treadle—out of the way, turns with 190° handle.
- Needle-type lowering valve—adjustable for perfect control.
- Length only 13¾ in.—fork stop to extreme front end for easy maneuverability in narrow aisles.
- Lightweight but strong—weighs under 200 lb. (with 48-in. forks).
- Capacity—3,000 pounds. Other models available in 4000- and 6000-lb. capacities.

WRITE FOR BULLETIN 5511

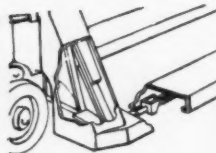
Ever see a time-saving feature like this hydraulic pump and ram package unit? Simply remove one bolt to change entire unit.



Exclusive feature with Barrett: "flying saucer" entry wheels skim into double-faced pallet—no pushing empty pallet ahead of truck.



Another Barrett exclusive: rugged, all-welded ribbed frame to withstand forces and stresses of hard, continuous use.



BARRETT-CRAVENS COMPANY • 614 Dundee Road, Northbrook, Illinois  
Representatives in All Principal Cities

# BARRETT

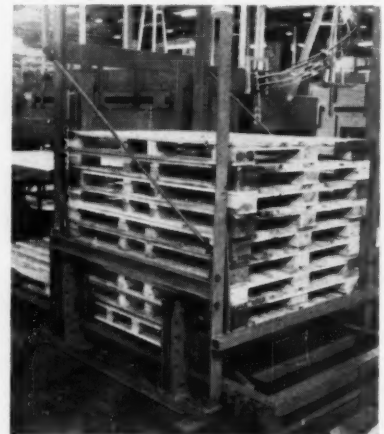
Materials handling equipment engineered to your job  
Circle 14 on Reader Service Card

## PRODUCT NEWS

Continued from page 54

### Dispenses or Stacks Pallets

Dispenser feeds pallets from magazine to loading station, or to conveyor serving several stations. Controlled manually or automatically. Small



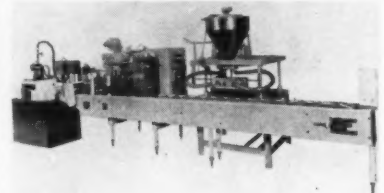
modification makes it a pallet stacker, receiving empty pallets, elevating and stacking them as high as headroom permits. Has end and side entrances for lift truck. Used in pairs for feeding and stacking, these dispensers eliminate almost all manual pallet handling, reduce lift truck usage. As stackers, they cut time for stacking in half.

H. L. Bushman Co.

Circle 416 on Reader Service Card

### Formed Container Automation

Completely automated by a continuous rotary process, Formline packaging machines are compact and hori-



zontal. They dispense, fill, and seal rigid plastic formed containers of all shapes. Packaging speeds on standard machines range from six to 100 per minute. Speeds up to 600 finished packages per minute are obtained on custom models. Tear tapes for opening covers are automatically applied if desired.

Formed Container Corp.

Circle 417 on Reader Service Card

Continued on page 110

MATERIAL HANDLING ENGINEERING



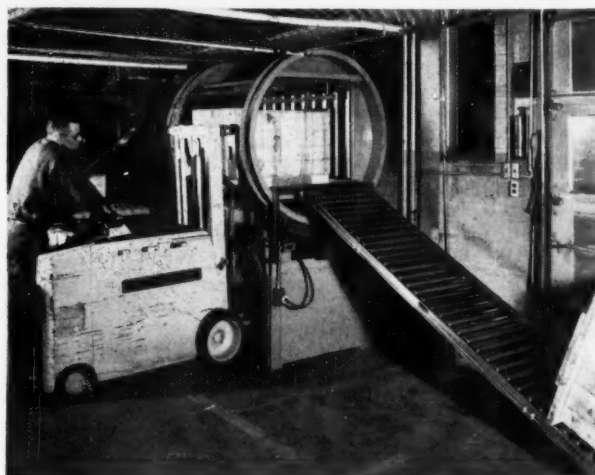


## HOW "TECHNICS" PLANNING PAYS "COMPOUND SAVINGS"

In any business, whether yours is a manufacturing plant, a wholesale warehouse, a retail or chain operation, or a service industry, materials handling is the one function that is closely related to all the other management arts.

Because of its influence on so many other departments and functions, it can be utilized as a management tool, to coordinate methods improvements throughout an organization, directed toward the common goal of reduced operating costs and increased profits.

This principle is the basis of Rapistan's proven "Technics" approach to cost reduction. It starts with the materials handling system, in all its aspects; then, extends the benefits of improved materials flow to produce subsidiary benefits in other areas of management as well.



New containerization of these conveyor wheels, specified by Purchasing, coupled with a new automatic unloading device designed by Plant Engineering, speeded truck unloading to 1/12th the former time. Wire-bound crates are designed for re-use as finished goods shipping containers for a further saving.

### Thorough Planning—The Key

Rapistan's "Technics" concept of materials handling goes an important step beyond solving the problems of movement, transfer, storage and flow control. It recognizes the inter-relationships of the flow system with other management functions—purchasing, industrial engineering, product design, manufacturing, quality control—even clerical procedures.

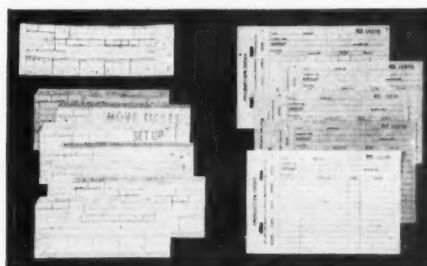
By thorough planning, to augment and capitalize on improvements in the flow system through all related management activities, a "Technics" plan gives management maximum return on its investment.

A successful Technics program requires skillful coordination, under centralized and authoritative direction. Only top management can provide this. But, by the nature of his specialization, the materials

handling engineer can contribute much to such a program. Your Rapistan sales engineer can offer new ideas and techniques of materials handling. And, his knowledge of "Technics" principles can help you compound the savings in many related phases of your total operation.

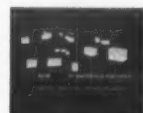


Plant engineers who designed this transfer mechanism to match Rapistan live storage Flow Racks helped make the entire system more efficient and versatile. Such contributions illustrate relationship between plant functions and materials handling, developed through Technics planning.



IBM data processing is coordinated with the flow system in this successful Technics program. These cards trigger movement of raw materials and work in process into and out of storage, and over the conveyor system between manufacturing operations.

This new brochure illustrates "Technics" planning at work in the management of materials, solving problems of inventory control, order selection and similar warehousing functions for manufacturing and distributing firms. For your copy write to The RAPIDS-STANDARD CO., Inc., 510 Rapistan Bldg., Grand Rapids 2, Michigan.



**Rapistan®**  
CONVEYING EQUIPMENT



Powell FLOW-MATIC system discharges box contents automatically, via gravity feed, at proper work level. Lift truck has easy access to load and unload boxes.

## POWELL FLOW-MATIC®

trims handling time 30%,  
saves 20% in storage space

Federal-Mogul Division improved its bulk handling of small parts with a low-cost Powell FLOW-MATIC materials handling system. Its Cleveland Plant gained more than 20% in limited floor space, saved 30% in handling time . . . while producing 60-80 million bushings, spacer tubes and washers yearly.

Simplify your production, handling and storage with the Powell FLOW-MATIC system. Write for *Bulletin FM* today.

**THE POWELL PRESSED STEEL COMPANY**  
DEPARTMENT 201-11 • HUBBARD, OHIO



*Materials handling is our only business*



Powell FLOW-MATIC systems reduce handling time as much as 48%.

Circle 108 on Reader Service Card

## PRODUCT NEWS

### Tractor Loader Attachment

A new Forced Feed Conveyor Loader attachment now goes with the Massey-Ferguson Utility 65 tractor.



This combination is ideal for stockpile loading, windrow pickup, scarifying and stripping, pit and bank loading. The tractor provides both transporting and operating power for loader operations. The conveyor, 30 inches wide, has heavy ply rubber belting. It runs 500 f.p.m. Capacity: 5 to 8 cu. yd. a minute in loose material and 20 cu. yd. a minute in snow. Operating height: 11 ft. Discharging height, 10 ft.

Massey-Ferguson Industrial Division

Circle 418 on Reader Service Card

### 1-Man Giant Strapper

It takes only one man to strap giant containers. Reel-fed strap goes



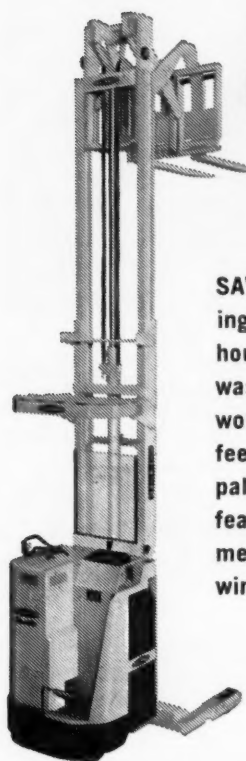
into a chute, is fed around the container, pneumatically tensioned to preset pressure, sealed and cut. Furthermore, the Model 480 Strapping Unit may be altered easily for product changes. It can strap cartons of almost any height and width.

A. J. Gerrard & Co.

Circle 419 on Reader Service Card

Continued on page 112

## These Trucks Make **NARROW AISLES** Possible!



**NEW**



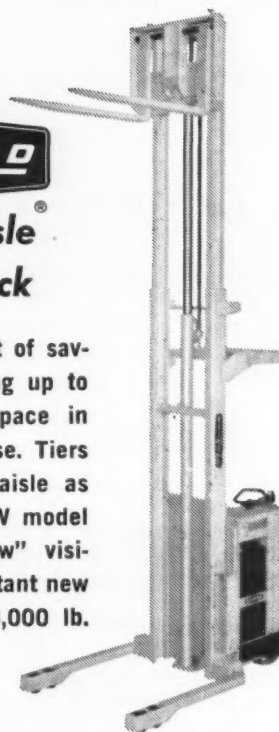
### **Narrow Aisle Reach-Fork®**

**SAVES YOU THE COST** of building or leasing another warehouse. Reach-Fork eliminates wasteful 10- and 12-foot aisles; works in aisles as narrow as 6 feet using present racks and pallets. **NEW** Reach-Fork model features 40 important improvements including new "picture window" visibility. 2,000 and 3,000 lb. capacities. Send for bulletin.



### **Narrow Aisle Electric Truck**

**PAYS FOR ITSELF** out of savings gained in creating up to 50% more storage space in your present warehouse. Tiers ceiling-high from an aisle as narrow as 6 feet. **NEW** model offers "picture window" visibility—one of 40 important new features. 2,000 and 3,000 lb. capacities. Send for bulletin.



### **Lightweight® Hand Pallet Truck**

**Frees power trucks** for stacking and continuous operation. Invaluable for intermittent handling on docks, trucks, elevators, etc. Easy rolling, operates in tight spots. Completely hydraulic. Built for years of use and abuse.



**Capacity:**  
2,000 and 3,000 lbs.  
Send for bulletin.



### **Walkie Stacker®**

**Low-cost stacker** tiers 2,000 lb. loads more than 10 feet high from aisles as narrow as 5 feet. Only 25½" longer than load. 24 volt power for faster lift and travel. Offers three speeds forward or reverse. Send for bulletin.



**WRITE TODAY! The RAYMOND CORPORATION • 3360 Madison St., Greene, N.Y.**

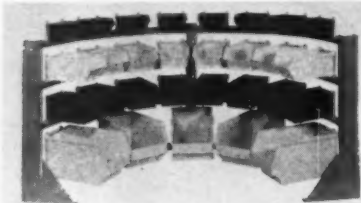
Circle 110 on Reader Service Card



## PRODUCT NEWS

### Semi-circular Bench Stand

Stand for company's Plastiboxes holds 3 sizes as shown. Can also be set up to mount all of any one size,



or combinations of other sizes depending on assembly operations. Plas-

tiboxes are easily removed for refilling. Stand provides maximum accessibility of parts to one assembly worker.

G. B. Lewis Co.

Circle 420 on Reader Service Card

### Pack Isolates Shock

System tradenamed Electro/suspension combines elastomeric shear mounts and reusable metal modular containers. Two standard ranges cut costs, speed deliveries. Spring weights from 240 lb/in. to 3,400 lb/in. Shock reduction averages 10 times. System converts force moments to shear action. Proven to MIL-P-116-B.

Zero Manufacturing Co.

Circle 421 on Reader Service Card

### Light Weight Loading Ramps

Magnesium ramps in 3 models, total capacities 1,500 lb. (Porto-Walk), 3,000 and 5,500 lb. (Com-



puter ramps, so named because they support computers safely). Weights range from 61 lb. for 6-ft.

Lite-Line Metal Industries  
Div. of Copperloy Corp.

Circle 422 on Reader Service Card

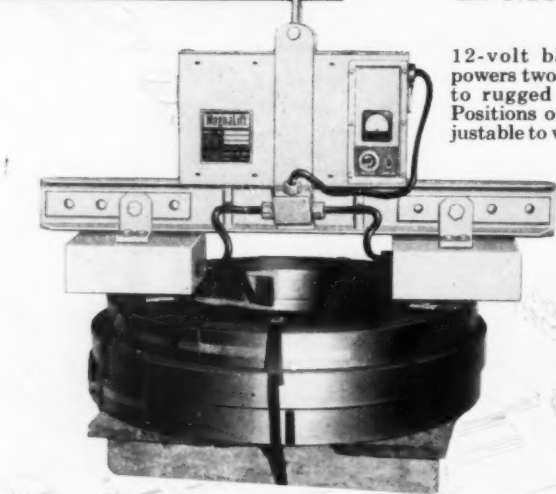
**NOW...load and  
unload steel  
coils anywhere**

without slings,  
hitches or chains!

**Powerful MagnaLift**  
battery-powered  
**COIL LIFTER**  
not dependent on  
an electric line

12-volt battery power pack powers two lift magnets attached to rugged steel spreader bar. Positions of magnets readily adjustable to varying coil diameters.

Power pack incorporates "On"- "Off" Switch, Safe-Charge Indicator, Built-In Charger, Remote Control Cable. Speed and simplify your coil handling with MagnaLift. Send for details, Dept. MH-111



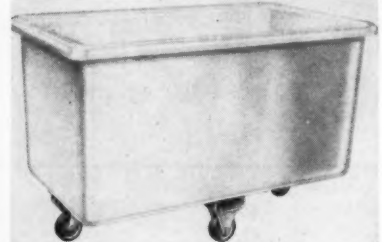
**MATERIALS HANDLING DIVISION**

*Hanchett* MAGNA-LOCK CORPORATION, BIG RAPIDS, MICHIGAN, U.S.A.

Circle 59 on Reader Service Card

### Lightweight Box Truck

Molded from fiberglass-reinforced polyester resin. Resists water, oil, mild acids and alkalis. Lighter than



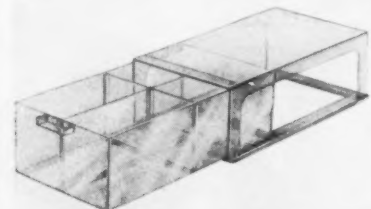
aluminum. Smooth inside surface, rounded corners shed dust, dirt. Withstands steam-cleaning, temps to -40° F. Tapered, nests when empty. Sizes from 16 to 21 cu. ft.

Hamilton Caster & Mfg. Co.

Circle 423 on Reader Service Card

### Visual Storage Drawers

Transparent Lucite "Vue-Trays" keep stored parts visible. For small parts, screws, electronic components,



chemicals, etc. Outer frames interlock so units can be added to or stacked. Drawers available with dividers. Exterior bottom sizes 12½ x 7, 12½ x 14, or 15 x 12½ in. Heights 2, 4, or 6 in.

Ceco Products Co.








Circle 424 on Reader Service Card

Continued on page 115

# SELECTION CHART

Here is a quick, easy reference chart for comparing the seven most popular Moline Chains. Are you familiar with all the attachments available... the range of sizes... and all their applications? This chart will help you compare their size, capacity range and various uses. It's a part of the new, illustrated "Moline Conveyor Chain Manual and Design Engineers' Handbook" which is available now to help you specify the right chain for your requirements. Write today for your copy.

**for triple-tested Moline Chains\***

	CHAIN TYPE & NUMBER	APPLICATION AND INSTALLATION	ATTACHMENTS	PITCH RANGE IN INCHES	ULTIMATE STRENGTH IN LBS.
	Detachable Chains—25, 32, 33, 34, 42, 45, 50, 51, S-51, 52, 55, 57, 62, 67, 75, 77, 78, 88, 95, 103, 108, 114, 124	Widely used throughout industry, conform to "manufacturers' standard" and available in a wide variety of sizes. Many attachments make this type versatile and adaptable to any light to medium-duty conveyor service.	A-1-2-3-12-110 C-1-5-8-15 D-3-4-5 E-1 F-2-8-16 K-1-2-3-5-40-73-345 H-1-2 K-1-2-3-5-40 L-2 M-1-3 R-1-2 S-1 Scraper 1-29	.902 to 4.063	700 to 17,000
	Pinle Chains 400 class. Light weight Pinle. 700 class.	Serviceable, long-wearing, moderately-priced chain for general elevating, conveying and power transmission service for drives at low and intermediate speeds with moderate loads. In "400" lightweight and "700" class types.	A-1-12-115 D-5 E-1 F-2-5-16 G-1-6-19 K-1-2 M-1 F-2-5 F-22-6" F-2-22-8" A-2-42 K-1-2-720-A-2-730 720-M-1 M-1-2	1.375 to 4.720	4,200 to 22,000
	H-Type Mill H-60, H-62, H-74, H-75, H-78, H-82, H-85, H-87, H-95, H-124	Designed primarily for heavy drives and transfer conveyors in saw mills and pulp and paper mills but widely used throughout industry. Strong and rugged, provided with wearing shoes for stiffness and long service life.	A-1-12 F-4 G-1-6-19-48 H-1-2 K-1-2 M-3 R & L RR	1.654 to 4.000	7,000 to 30,000
	Combination Type Mill Chain 6104, 6110, 8116, 8480	Designed for the same applications as regular H-type conveyor chains and refuse chains but has larger diameter rivet, greater ultimate strength for more rugged duty in general drag conveyor service applications.		6.00 to 8.00	42,000 to 56,000
	Combination Chains—C-55, C-77, C-102B, C-102½, C-110, C-110-C, C-111, C-111-C, C-131, C-131-C, C-132, C-132-C, PW-132, C-188, MW-188	Very rugged and serviceable for use in bucket, transfer and many other types of conveyors. Widely used in cement, chemical, lumber, quarrying, mining industries. Available in pin and cotter assembly or riveted construction.	C-3-132 RF-12 F-2 G-6-19 K-1-2-3 LL-25	1.631 to 6.050	9,000 to 50,000
	Dairy Conveyor MC-33	Extensively used in dairy and bottling industries, designed for both horizontal and lateral turning. Detachable construction, interchangeable with manufacturers' standard 4250, available only in extra strength Promal.		2.500 only	12,000
	Ley bushed Chain—823, 825, 830, 844	Developed for hard, rugged service under extremely abrasive and other adverse conditions. Used extensively in conveying or elevating sand, gravel, cement and in similar industries where service demands are rigid.	K-2 F-2	4.00 to 6.00	19,000 to 40,000

Write today for your free copy of the Moline Conveyor Chain Manual and Design Engineers' Handbook.



Leaders for  
60 years

## Moline Chains

MOLINE MALLEABLE IRON CO., St. Charles, Illinois  
Specializing in the manufacture of chains

\*Call your nearby Moline dealer today for help on your chain problem. Complete design service available for special chains or unusual applications.

application through  
**IMAGINATION**  
 AMERICAN PRESIDENT LINES



## Travelift by Drott stacks a container every 2½ minutes for "President Tyler"

The President Tyler, second in APL's new containerized cargo ships, recently chose as its land-based partner . . . Travelift by Drott. Travelift's demanding job is to "work the yard" handling APL's new 8'x8'x20' Cargo Van containers.

With hydraulically operated steering, traversing and hoisting, this swift moving giant transfers a

container every 2½ minutes with maximum efficiency and minimum downtime . . . a dependable partner in American President Line's progress.

To find out how Travelift can solve your materials handling problems, write today for details. You'll be surprised at its versatility and its price . . . for most models less than \$1000 per ton of lifting capacity. Models from 7 to 50 ton capacity.

CLIP AND MAIL TO:

**TRAVELIFT, A Division of Drott Mfg., Corp.**  
 Wausau, Wisconsin

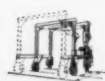
Gentlemen, please RUSH full information on Travelift.

Name .....

Company Name .....

Address .....

City ..... Zone ..... State .....



Adjustable wheel base.



Traverses straddle area.



Hydraulic drive and steering.



Adaptable to many attachments.

# Travelift

By DROTT

A DIVISION OF THE DROTT MFG. CORP., WAUSAU, WISCONSIN

Circle 128 on Reader Service Card

MATERIAL HANDLING ENGINEERING

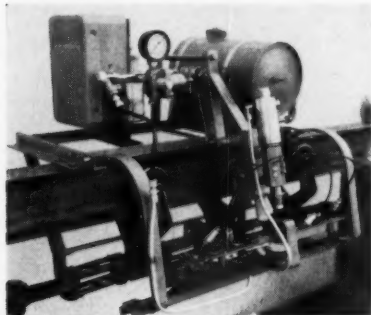


## PRODUCT

## NEWS

### Automatic Lubricator

Lubricates all the chain pins on a trolley type conveyor. Especially useful where oil drippage must be avoided.



ed. Lubricator places the oil where it's needed. Lubricant goes on the top of the pin, on the side that the chain link rides against. Gravity brings the lubricant down in between the pin and the link. Air-operated unit has a caterpillar-type chain driven by the conveyor chain. This actuates a group of oil dispensing nozzles. The nozzles move in and out over the conveyor chain, as well as along with it.

*Cole Associates  
Industrial Sales Div.,  
The Industrial Erectors, Inc.  
Circle 435 on Reader Service Card*

### 25-Ton Straddle Truck

The M500A 50,000 lb. capacity Straddle Truck carrier features an all-hydraulic lift system. Main feature: maneuverability. Company says vul-



nerable mechanical linkage (sprockets, chains, etc.) have all been eliminated. Two high pressure pumps power load lift and shoe swing and steering. A flow motor assures equal hydraulic pressure at four lifting points, equalizing cylinder travel for safe operation. A four-way check valve locks each hoisting cylinder, prevents accidental lowering of load without hydraulic power. Sixty-gallon

fuel and hydraulic tanks are located inside the carrier's frame. Standard sizes from 60" high x 58" wide to 84" high x 82" wide are available.

*Hyster Co.*

*Circle 426 on Reader Service Card*

### Tough Bottom on Tote Box

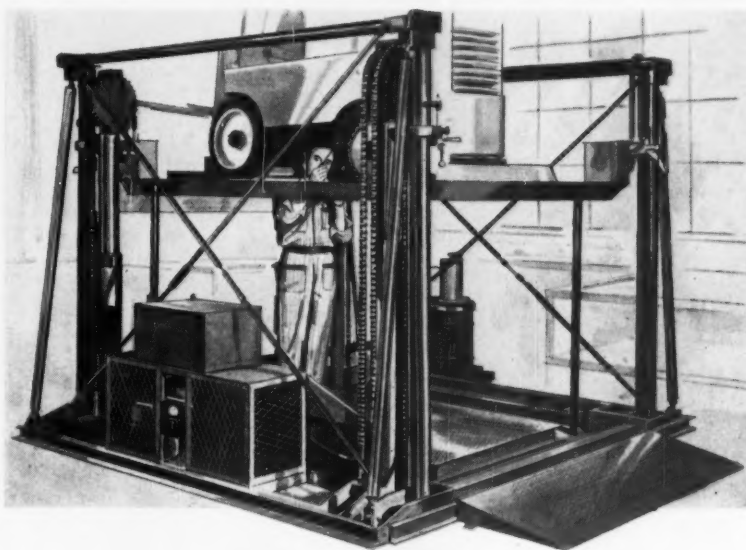
Duplex bottom tote boxes are for use on roller and skate wheel conveyors. They are lighter and stronger than boxes with full wooden bottoms, give a smoother ride than boxes with conventional shoes or runners. The box is vulcanized fibre, and the duplex bottom, riveted to the normal



fibre bottom, is made of a 5-ply vulcanized fibre and plywood plate 1/4 in. thick.

*National Vulcanized Fibre Co.  
Circle 427 on Reader Service Card*

*Continued on page 116*



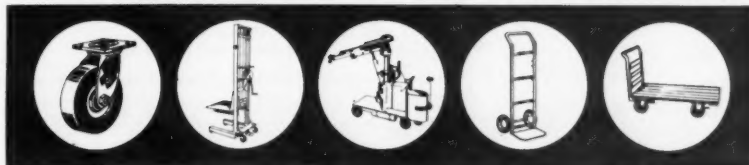
from the ground UP  builds it better...

Colson maintenance machinery and equipment is designed to make each specific job quicker, safer, easier. Colson products actually prove, by outperforming and outlasting all others, that quality costs less when you buy the best!

No pit or sub-surface installation necessary with a Colson Lubrilift! Maintenance crews get under and inside to speed up greasing entire fleets of 3 and 6 ton fork lifts, as well as other trucks and tractors, with minimum labor and maximum efficiency, economy and safety.

Send today for FREE catalog illustrating Colson stationary and portable industrial platform and maintenance lifts! Capacities from 2,000 to 20,000 lbs.

**THE COLSON CORPORATION** 7 S. Dearborn St. • Chicago, Ill.  
Plants: Jonesboro, Arkansas; Somerville, Massachusetts; Elyria, Ohio; Toronto, Can.



*Circle 24 on Reader Service Card*

## PRODUCT NEWS

### Space-saving Pallets

The Relae is a lightweight, compact pallet suitable for fork truck handling. Also sold with demountable legs and wheels which quickly convert it to a semi-live skid. Available in aluminum, steel, or wood. All feature slide-in legs and wheels, and come in standard and special pallet sizes. May be equipped with ends,

sides, and racks. An additional accessory, a manual or powered Spot-



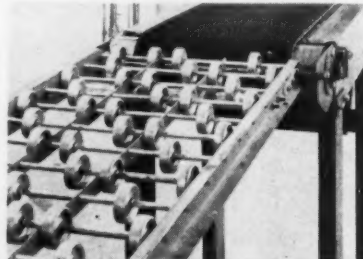
ter, completes the unit. This provides easy pulling and turning.

Kappen Sales Co.

Circle 428 on Reader Service Card

### Gravity Conveyors, Steel or Aluminum

Line of 15-inch wheel type gravity conveyor for handling packages, other smooth, flat-bottom materials is made of galvanized steel or heat-treated aluminum frames. Designed for use in many flow systems, can be set up quickly with other Hytrol conveyors



and accessories. Available 5' and 10' sections. Load capacities to 1,600 lb. per 5' section in steel, to 1,050 lb. in aluminum.

Hytrol Conveyor Co., Inc.

Circle 429 on Reader Service Card

### Two New Industrial Radios



The Dispatcher radio (top) mounts on any industrial vehicle. It's transistorized—highly reliable with low battery drain. Five-watt output gives clear reception even in noisy plants. The Handie-Talkie portable radio-telephone receiver (bottom) now works



with transistors. This doubles battery life, halves operating costs. Power output ranges from 1 to 8 watts.

Motorola Inc.

Circle 430 on Reader Service Card

Continued on page 118

# NEW!

## UNIVERSAL INTERCHANGEABLE

### STURDI BILT

SLOTTED ANGLE

...from America's leading maker  
of heavy-duty storage racks

You just name it, then frame it. That's all there is to it... with STURDI-BILT Slotted Angle. Yes, this universal, interchangeable new material can be used to build nearly anything, anywhere... with new strength and savings.

Developed by America's leading maker of heavy-duty racks, STURDI-BILT Slotted Angle combines maximum flexibility and convenience with the utmost strength and durability. Result: you get more value for less money.

**FREE:**

Send today for STURDI-BILT Slotted Angle catalog including accessories, capacity charts, suggested applications.

### STURDI BILT

Racks the goods of the world

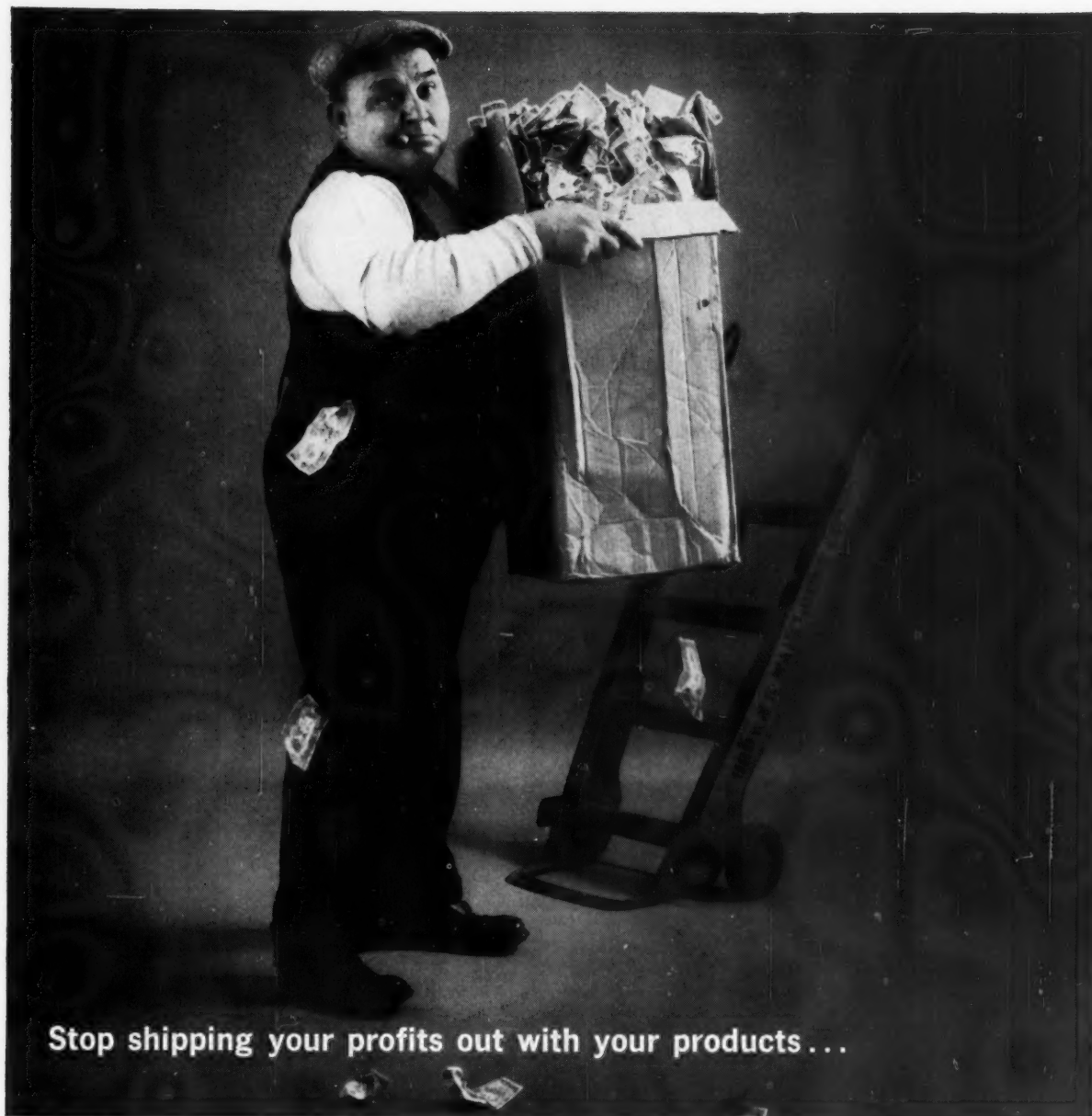
**SEND TODAY  
FOR FULL  
DETAILS**

(Distributor inquiries  
also invited)

**STURDI-BILT Material Handling Division**  
Union Asbestos & Rubber Company, Dept. MHE-1161  
332 South Michigan Avenue, Chicago 4, Illinois  
Please send full details on STURDI-BILT Slotted Angle.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

Circle 123 on Reader Service Card

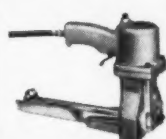


Stop shipping your profits out with your products...

## BOSTITCH staplers secure shipments, savings and efficiency



Model D16 Top Stapler seals tops of corrugated containers across seam entirely from outside. Lightweight for easy operation and portability. Drives wide-crown staples and clinches them inside work.



Model D16AD Air Drive Top Sealer incorporates all features of the D16 including quick loading and exclusive single-adjustment clinch control. Fast, portable, easy operation at minimum cost in time and materials.



Model D9 Autoclench seals top flaps, working entirely from outside with self-closing staples. With Bostitch staples you fasten more than the surface; you fasten all the way through the combined thicknesses.



Model F94 places wide-crown staples across joint where bottom flaps meet. Spaced five inches apart, staples meet requirements of Rule 41. Foot operated or motor driven. Fewer staples and faster work keep costs low.



Model FC95 "Golden Belt" Bottomer drives 4000 staples without re-loading, eliminating 75% of time lost in loading. Deep throat permits stapling carton bottoms up to two feet long without reversing.



Model No. 148 stitcher makes its own staples from coil of wire. Economical where high output is needed and low investment is important. For bottoming regular and special slotted containers.

**Fasten it better and faster with**

Write for free booklet, "How to Cut Costs on 20 Shipping Room Jobs." Or call your Bostitch Economy Man. He's listed in your phone book.

**BOSTITCH®**  
STAPLERS AND STAPLES

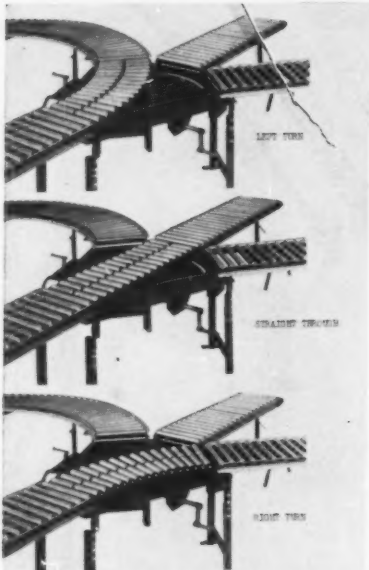
711 BRIGGS DRIVE, EAST GREENWICH, R. I.

Circle 11 on Reader Service Card



## PRODUCT NEWS

### 3-Way Conveyor Switch Units



Flexible roller curve units for switching conveyORIZED items onto spur lines left, right, or straight

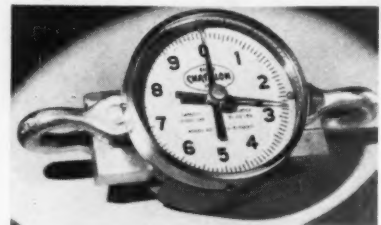
through make conveyor systems more versatile. Models for three way, Y, or spur switchings are available. Switch units connect to gravity or power conveyors, operate by hand or by motor. Three-way switch model diverts materials from a common carrier 45-degrees left, right, or straight through, or material from any three lines can be channeled onto a common line. The Y switch diverts materials to right and left spur lines only. Spur switch model has straight-through and either right or left hand position turn. The curve units are for 12-, 18-, or 24-inch conveyors, are designed with rollers in two lanes to assure material alignment around curves. Rollers can be pitched to aid gravity flow.

*The Rapids-Standard Co. Inc.*  
Circle 431 on Reader Service Card

### Rugged Dynamometer

TD Traction Dynamometer has ranges of 500 through 20,000 lb. Unusually rugged, unharmed by suddenly applied or released loads. Protects against climate and dust, has shatterproof glass, is corrosion resistant, conforms to Federal specs. Accurate to 1 percent of capacity. Good for measuring static and dynamic

loads in tension, compression, weight, torque, and traction. Comes with



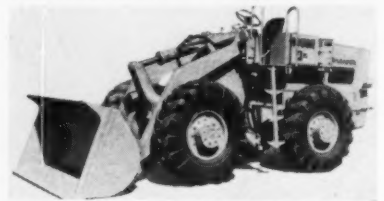
maximum indicating pointer and 10 percent tare adjustment.

*John Chatillon & Sons*

Circle 432 on Reader Service Card

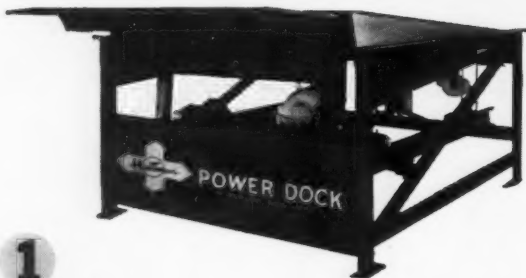
### New Front End Loaders

Absolutely new 4-wheel-drive front end loaders feature simplified boom



and bucket mechanisms. This means 4 to 10 fewer pivot and grease points, less maintenance. Further, all steering, boom, and bucket pivot points have protective seals—keep grease in,

# 2 ANSWERS to your loading dock problems

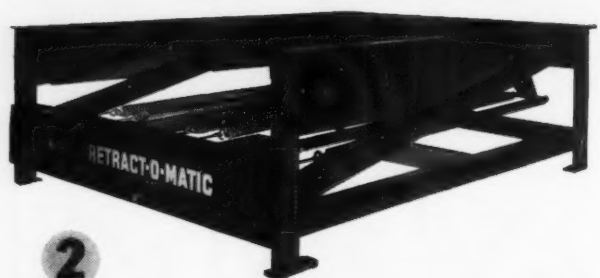


1

### Hartman POWER DOCK

Superbly engineered to save manpower, prevent damage to truck or load, handle highway carriers swiftly, efficiently. Exclusive Retractable Lip with 30" extension. Push Button Controls. 100% safe. Electro-Mechanical, maintenance-free operation. 10 ton capacity. Write for Bulletin.

ATTENTION REPRESENTATIVES  
Several territories still available  
Write for full details



2

### Hartman RETRACT-O-MATIC DOCK

New low-cost dock with lip that extends up to 24" to handle any truck or load. No attendant required for spotting. Rugged, simple to operate, completely safe. 2 Models: 6' x 6' and 6' x 8' Deck. Send for Bulletin.

**Hartman**  
METAL FABRICATORS, INC.  
1324 Main St., Waterloo, N.Y.

Circle 60 on Reader Service Card

dust and dirt out. Part of the Pay-loader line, they're the Model H-60 with 1½ cu. yd. capacity and the Model H-70 series C with 2½ cu. yd. capacity. Both models also feature safety and ease of operation. Adjustable bucket seats, convenient controls, safety ladder with hand rails, maximum visibility.

*The Frank G. Hough Co.*

Circle 433 on Reader Service Card

### Roller Improves Truck

Rollers behind the nose of hand truck make it easier to load and unload. The Handi-Truck is made of



electrically welded steel tubing, has ball-bearing wheels, rubber tires.

*Southeastern Mfg., Inc.*

Circle 434 on Reader Service Card

### Superstrong Totebox

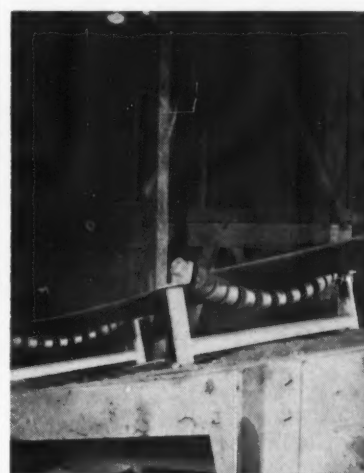
New "Heavy-Duty" totebox weighs only 4 lb., supports over 800 lb., as dramatic photo shows. (After 45



minutes the 8 x 11 in. bottoms deflected only ½ in. under this load!) These boxes are made of double-wall corrugated, impregnated with a chemical to produce the remarkable strength and rigidity. Upper edges are reinforced. In addition to the nesting style pictured, boxes are available in stacking, vertical-sided, bin-front, hopper-front, and nestacking models. There are 300 sizes. In quantity the 1½ cu. ft. box shown costs \$1.25 each. *Convoy Inc.*

Circle 425 on Reader Service Card

Continued on next page



### This conveyor idler can handle abrasive or corrosive material The JOY Limberoller®

Sand, gravel and other abrasive materials are no problem for Joy Limberoller belt conveyor idlers. The entire idler is made of neoprene discs molded to a flexible steel cable. The ends of the cable are swaged into bearings mounted in swiveling support brackets. The bearings are up out of the dirt—away from spilled material. The neoprene cable covering and molded discs are impervious to the attack of most chemicals which corrode steel.

If you have problems handling bulk materials that are abrasive or corrosive the Limberoller can be an immediate solution. They can be quickly installed on your present equipment. For complete information, write for bulletin 2759-90.

# JOY

**Joy Manufacturing Company**  
Oliver Building, Pittsburgh 22, Pa.

In Canada: Joy Manufacturing Company  
(Canada) Limited, Galt, Ontario

Circle 72 on Reader Service Card

## JARKE MODULAR STORAGE SYSTEMS

Increase Storage Efficiency ... Save Time ... Cut Costs



Easy  
To  
Handle  
•  
Quickly  
Set Up  
Or Taken  
Down

### For Permanent Or Temporary Storage

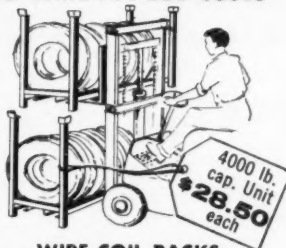
Jarke Mini-Modules give you storage when you want it, where you want it. Easily set up or taken down, no bolts, no tools, no fittings. Special "nesting" caps provide fast stacking and insure rigid, no-slip interlocking tiers. Sturdy steel construction. Lightweight. Four standard sizes. Send for details now!

**JARKE**  
MANUFACTURING COMPANY

6333 Howard St.  
Chicago 48, Illinois

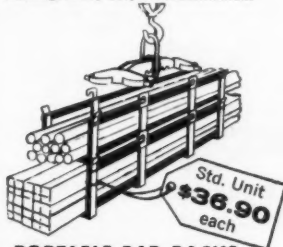
MODULAR STORAGE SYSTEMS FOR METAL INDUSTRY • STEELMOBILE

Circle 73 on Reader Service Card



### WIRE COIL RACKS

Designed for stacking coiled material, these racks have four-way entry for fork truck, open ends for ram-type deposit of coils. Nesting caps insure fast easy stacking. Heavy-duty steel construction.



### PORTABLE BAR RACKS

Unique crane grab permits load centering and rapid fool-proof engagement. Automatic grab also available. Assorted standard sizes. Specials to order.

## PRODUCT NEWS

### Smooth-surface Conveyor Belting

Flat-top, hinged-steel conveyor belting can be installed above the floor, or flush with the floor. It han-



dles bulky, hot, or heavy materials and assemblies. Conveyors can be designed to transport loads in one, or in two directions. One-Way flat-top belting is non-reversible. Two-Way is designed for reversible systems. Belting can negotiate convex

or concave curves. The hinged-steel interlocking belt design maintains closely fitted joints at all times, provides a smooth carrying surface. Available in widths from 12 to 60 inches, 6 or 9-inch pitch links.

*May-Fran Mfg. Co.*

Circle 436 on Reader Service Card

### 150-Ton Lift

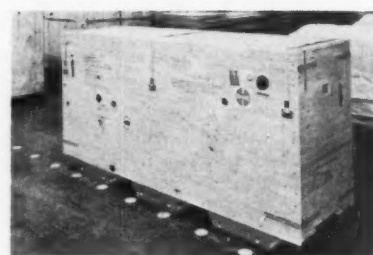
Blocks with 24" sheaves added to maker's high quality line. Available with 1 to 4 sheaves, 35 to 150-ton capacities. Three-sheave block lifts 90 tons.

*Miller Swivel Products Co., Inc.*

Circle 437 on Reader Service Card

### Cushioned Skids Protect Shipments

Here's a cushioned skid for protecting heavy or bulk items within large skidded containers. Pacco cushioned skids fasten to the bottom of crates, large boxes, or pallets, protect the shipment from handling hazards. Company says you can eliminate elaborate shock isolation systems with these skids. Fifteen standard sizes available, to protect loads from 100 to 3,000 lb. Each skid has a cushioning pad of polystyrene foam (Resilo-



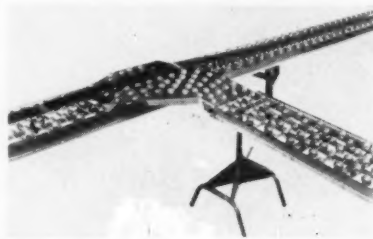
Pak). A 1½" thick pad within the skid is precompressed to 1¼" to minimize drift and thickness loss.

*Packaging & Converting Co., Inc.*

Circle 438 on Reader Service Card

### Accessories for Conveyors

Three new accessories increase the versatility of APC (Automatic Pres-



sure) conveyors. They're a flow diverter plate, gate, and snubber kit. The flow diverter plate (photo)

## HI QUALITY . . . LO COST **Lo-LIFT** PALLET TRUCK

featuring

### LEAKPROOF HYDRAULIC UNIT

minimum maintenance



Sealed ball bearings throughout. All standard lengths 36", 42", 48". Fork widths 20½" or 27". Rugged welded construction. Wheels of steel, rubber, aluminum, celeron (polyurethane extra). Raised height of forks 8"; lowered height of forks 3¼".

**\$29900**

2600 pounds capacity  
FOB  
New York — Chicago  
4400 lbs. cap. \$340.00

Specialized custom sizes available  
Mfg'd. by Hi-Lo Equipment (Canada) Limited

**The Charles W. Meldram Co., Inc.**  
230 PARK AVENUE • NEW YORK 17, N. Y.

Circle 95 on Reader Service Card



SINGLE UNITS

COMPLETE SYSTEMS

## **UNIBILT®** CONVEYORS PAY OFF FOR YOU

Right from the start when you gain the cost advantage of assembling Conveyors from standardized, pre-engineered components.

In the long run when you gain the cost advantage of operating conveyors that are proven trouble-free in thousands of installations.

Write for Full Line Bulletin

**CONVEYOR SPECIALTY**  
COMPANY, INCORPORATED  
Distributors in Principal Cities

41 Newport Avenue, North Quincy 71, Mass.

Circle 26 on Reader Service Card

MATERIAL HANDLING ENGINEERING



enables you to transfer between APC conveyor and another at right angles. You put the plate under the belt on the APC. Plate weighs only 35 lb., needs no bolts or fasteners to stay in place. The APC gate lets you raise a section of the APC conveyor so that aisles are not permanently blocked. It has a microswitch which stops the conveyor motor automatically. The snubber kit lets you insert other types of equipment in an APC line without disrupting belt movement. It snubs APC belt down and under spur curve switches, gravity conveyor sections, tables, or other equipment.

*The Rapids-Standard Co.*

Circle 439 on Reader Service Card

### All-steel Portable Dock

The Mobil-Board lets you spot trucks and trailers where you want them. Designed to give you full use



of your fork trucks. One fork fits into a swivel device, and the fork

lift driver then pushes (or pulls) the Mobil-Board to where it's needed. Company says this unit takes only one man to set-up or move, yet it gives the ruggedness and long life of an all-steel ramp.

*Conrad Equipment Co.*

Circle 440 on Reader Service Card

### Stringless Tags

Tags with stripe of self-sticking adhesive don't need strings, go on



faster, save work. They make it possible to tag products on which string or stapled tags can't be used. The stripe of stickum on one end also enables you to use a new wrap-around method of tagging, as illustrated.

*Dennison Mfg. Co.*

Circle 441 on Reader Service Card

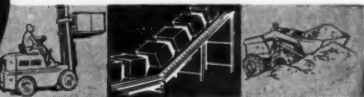
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**ON-TIME**  
maintenance cuts  
down-time **DOWN**

**Hobbs**

**INDUSTRIAL  
HOUR METERS**



For use with gasoline, electric  
and diesel powered equipment

**PLANNED MAINTENANCE** based on actual hours of use is the answer to more GO-time and less DOWN-time on your equipment!

**TRUE RUNNING TIME** gives you a realistic basis for renting and leasing, service contracts, buying and selling.

**HOBBS** electrical timing instruments are the basic source for the facts you need—revolution counters cannot do the job. Distributors in principal cities: . . . WRITE FOR CATALOG 600.



**John W. Hobbs Corporation**

A DIVISION OF STEWART-WARNER CORPORATION  
2061 YALE BLVD.  
SPRINGFIELD, ILLINOIS



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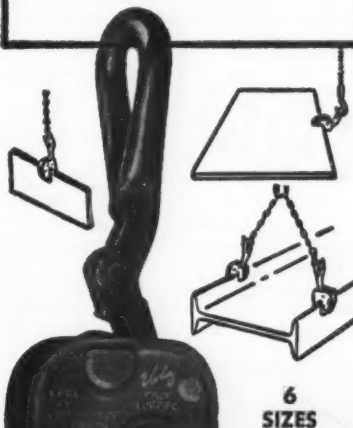
November 1961

YOUR BEST MOVE . . . MOVE

with **MERRILL**  
MATERIAL HANDLING  
DEVICES FOR THE MOST  
IN

*Safety and  
Economy*

Imitated, but never duplicated,  
Merrill Lifting Clamps are Drop  
Forged to give you Safety in Hand-  
ling and Economy in Operation.



**FEATURING  
THIS  
MONTH**



**LARGE OPENING "G" CLAMP**  
Designed for lifting and rolling  
extra heavy and extra thick  
plates and slabs. Standard 3"  
ranges to 12". All capacities.

**Over 25 Material Handling  
Devices described in our  
catalog C-3.**

Ask for a copy.

**MERRILL BROTHERS**

56-74 Arnold Ave., Maspeth, N. Y.

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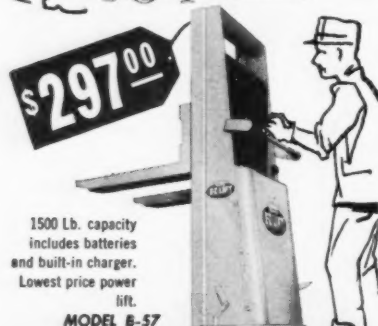
121

# 54\* by Crown VALUE PRICED!



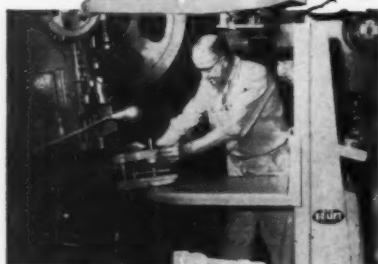
Lifts loads up to half ton safely, efficiently. Operates in narrow aisles.

MODEL H-57



1500 Lb. capacity includes batteries and built-in charger. Lowest price power lift.

MODEL B-57



Compact, power propelled, power lift. Includes batteries and built-in charger.

MODEL W-57

\*Send for free catalog of 54 Models.

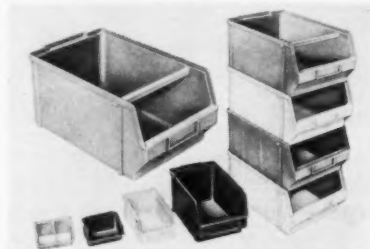


MATERIAL HANDLING DIVISION  
Circle 28 on Reader Service Card

## PRODUCT NEWS

### Large Size Tote Box

The company's new PB-4 Plasti-box measures 13" x 8" x 6". Equipped with a stacking brace for safe, high stacks of fully-loaded boxes. Comes in green or yellow molded-in colors. Resists oil, water, and most chemicals. Accessories include mounting rails so the boxes can be used on Lewis floor trucks, floor, and bench



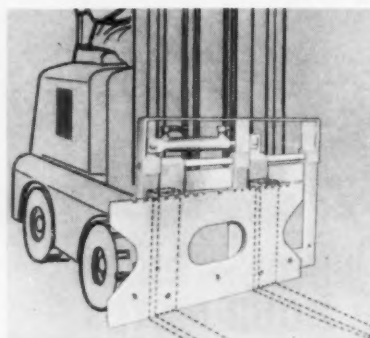
stands. You can compare its size to four other models also pictured.

G. B. Lewis Co.

Circle 442 on Reader Service Card

### New Hook-Type Side Shifter

A hook-type side shifter hangs on standard fork plates, is used mainly with a pair of forks. It shifts the forks



4 inches to either side of center. No moving plates to bear on the fork plate. Trouble-free movement. The side shifter takes capacities up to 10,000 lb. Upper sliding members are bronze-bushed with easily accessible grease fittings.

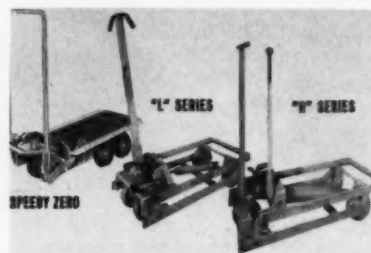
Little Giant Products Inc.

Circle 443 on Reader Service Card

### New Skid Trucks

Three new trucks have capacities of 1,100 lb., 2,400 lb., and 4,800 lb. The 1,100-lb. model (pictured left) has 5 1/2 in. lowered height. It and Model L (2,400-lb. capacity) lift 2 in. mechanically in one stroke. Model L has hydraulically controlled low-

ering. The 4,800-lb. capacity Model H has a 2 1/2 in. multistroke hydraulic



lift, and hydraulic lowering. Forged steel wheels are standard on Models L and H, but special wheels are obtainable for all models.

Stokvis Multiton Corp.

Circle 444 on Reader Service Card

### Automatic Stenciler Weights Only 20 Pounds

A lightweight electrically-powered stenciler. The Mark V Junior automatic stenciler can be hand held for



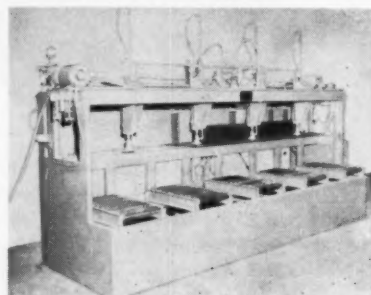
marking. Or you can suspend it from a counter-balanced arm. Stencil attaches easily to the under side. Can be changed in seconds. Only a few ounces of pressure are required to ink in the 3" x 8" stencil areas. Constant supply of ink from a built-in reservoir.

Ideal Stencil Machine Co.

Circle 445 on Reader Service Card

### Vacuum Feeder

Designed to lift metal sheets from a stack and feed them vertically to a punch press or other operation. Has a



3/4 horsepower motor, variable speed drive, and a complete vacuum system with 1/2 horsepower vacuum pump. Vacuum cups lift sheet from a stack. Automatic raising arms turn the sheet

MATERIAL HANDLING ENGINEERING

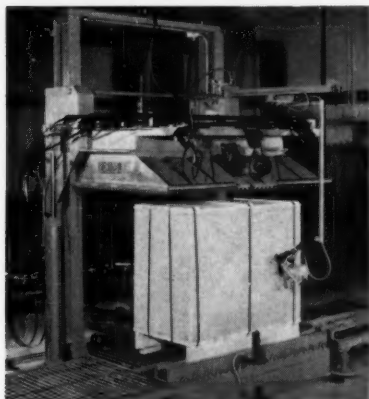
to vertical position against powered, magnetic feeder rolls. The rolls hold the sheet in a vertical position while feeding.

*The Union Tool Corp.*

Circle 446 on Reader Service Card

### Wraps, Straps 50% Faster

System enables 2 men to wrap and strap skids of paper fifty percent



faster than 3 men using old methods. Has wrapping station, that drapes paper around skid, and strapping station with CSF20 compression strapping machine. Big share of time saving results from new device that threads steel straps through small notches in the skid runners. Conveyor accurately indexes skid to line up notches with this strap threader.

*Signode Steel Strapping Co.*

Circle 447 on Reader Service Card

### Lift Truck Scale

Hydroscale unit attaches to any fork lift truck. Can be put on and lock-clamped in a matter of minutes.



Models available for bracket type or bar type fork mountings. Scale capacities: 1,000 to 6,000 lb. Company says you can enjoy all the advantages of a mobile platform scale in your plant, storage yard, or loading dock. Lift truck scale is self-contained. There's no connection to the hydraulic system of the lift truck.

*Hydroway Scales, Inc.*

Circle 448 on Reader Service Card

Continued on next page

Circle 25 on Reader Service Card



with **TEMP-R-TAPE®**

Temp-R-Tape eliminates sticking problems and undesirable accumulations. No materials, even those of a sticky, or viscous nature will adhere fast to its slick, wax-like TEFLON surface. Pressure-sensitive . . . it's easy to apply . . . easy to remove . . . reduces the down time involved in sprayed or baked-on Teflon surfacing. Temp-R-Tape has a useful temperature range of -100°F to 500°F. It's odorless, non-contaminating, non-absorbing and durable.

**NON-STICK USES:** heat sealing bars; forming plates, dies and bars; labelling rollers; chutes; hoppers; gussets; fins; guide rails.

**AVAILABLE FROM STOCK:** 1/4" to 2" widths, 18 yd. and 36 yd. rolls and 12" widths on liner by lineal yd. Special roll widths slit to order. Sold through distributors.

**FREE SAMPLE** and folder — write, phone or use inquiry service.

**ELECTRICAL AND INDUSTRIAL SPECIALTY TAPES**



**CONNECTICUT HARD RUBBER CO.**

\*duPont TM

Main office: New Haven 9, Connecticut

**MOTORIZED**

# COIL LIFTER

**SAVES  
STORAGE SPACE...  
HANDLES COILS FASTER . . . SAFER**

***1 Lifter Handles Both Wide  
and Narrow Coils With  
Same Speed and Economy***



This C-F Coil Lifter, under control of the Crane operator handles hundreds of coils a day in a large mill . . . wide, narrow, and of varying tonnage. Fast, infinite adjustments of the motorized legs permit quick pick-up and set-down. Legs can be opened to any width and held . . . no need to open to maximum width to handle narrow coil. Maximum of 12" required between coils of any width—saves storage room.

Positive tong grip on coil tightens as lift is made . . . insures safe handling. Made in motorized models for crane cab or pendant operation as well as manual types with chain wheel, in capacities from 3 tons up. Powered Rotating Heads available. Opening ranges to suit your requirements. Write for Bulletin and complete information.

**CULLEN-FRIESTEDT CO.**

1320 South Kilbourn Avenue • Chicago 23, Illinois

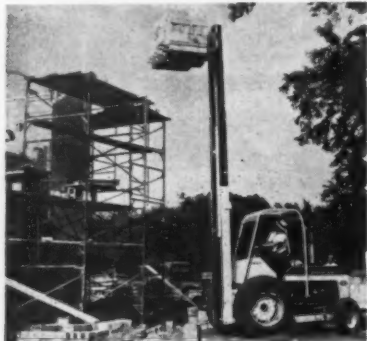
Circle 29 on Reader Service Card



## PRODUCT NEWS

### Lift for Tractors

Takes 2,500 lb. to 21 ft. height. Load center, 24". Mounts on utility

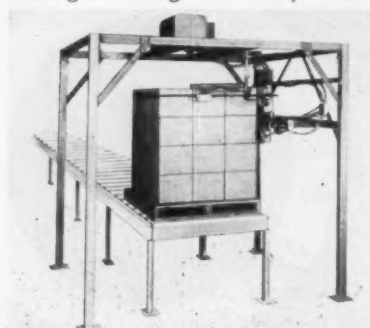


tractors of popular makes. Includes side shifter, overhead safety guard, load limit control.

Henry Mfg. Co., Inc.

Circle 449 on Reader Service Card

unit load, whether on pallet, or unpalletized. Tape keeps load from shifting or falling. Takes only 8 sec-



onds to run tape around 4 sides, overlap end, cut and clamp. Accepts tape 1/4-in. to 1 1/2-in. in width. Adjustable to handle loads from 40 to 54 in. long, 28 to 72 in. high. Other models can be engineered for special size requirements. Can be integrated with any existing manual or automatic pallet-loading system.

Lathrop-Paulson Co.

Circle 450 on Reader Service Card

uct placed in blister manually or by machine feeder, blisters sealed to backing, and cut off into single or pre-count multiple packs.

Products Packaging Engineering

Circle 451 on Reader Service Card

### Double-Depth Storage

Company calls its Glide-In Rack a new idea for order-picking systems. You get double-depth storage from the aisle. Second pallet moves forward as soon as front pallet is picked empty and removed. Rack will take



any pallet, even broken or single-faced. No loss of vertical cube; entire

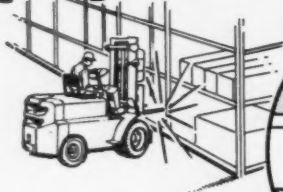
### Tapes Unit Loads Automatically

Automatic taper puts strip of pressure sensitive tape around top tier of

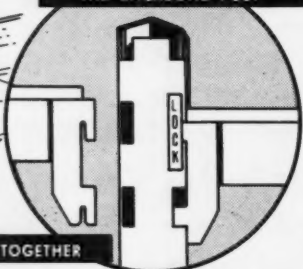
### Blister Pack Machine

Pac-O-Vac 2400 forms, fills, seals automatically in one operation. Uses thermoplastic film from a roll. Prod-

# IMPACT PROOF



THE BACKBONE POST



JUST HOOK THEM TOGETHER

## fico BACKBONE® RACKS

THE UPRIGHT FRAME WITH A BUILT-IN STRUCTURAL STEEL BACKBONE

Custom engineered racks at stock prices, 3 Post types and 8 beam members to suit your requirements. Write for our simple "Space Survey" form to help you plan your requirements.

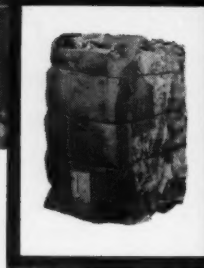
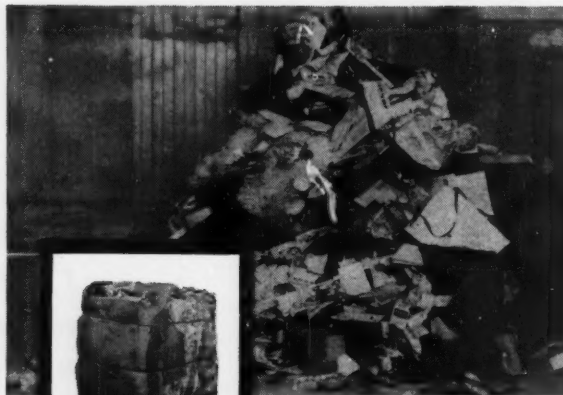
Manufacturers

MIDLAND INDUSTRIES T/M, 485 21st, Irvington 11, N.J.  
INCA METAL PRODUCTS CORP., P. O. Box 398, Carrollton, Tex.  
(F. O. B. Point — Dallas, Tex.)  
MATTHEW MOODY & SONS Ltd., P.O. Box 10, Mount Royal Station,  
Montreal, P.Q., Canada

Write for information on available exclusive franchises

Circle 66 on Reader Service Card

## WHAT A DIFFERENCE with CONSOLIDATED BALERS



You can take your choice—cluttered, unsightly, dangerous and costly floor space... or a low-cost Consolidated baling press that produces dense bales, speedily, safely and economically. Rugged all-steel, hydraulic Consolidated baling machines are simple to operate, completely self-contained and occupy a minimum of floor space.

Send for further data on Consolidated balers—over 50 standard models available for every need. Hydraulic specialists since 1909



### CONSOLIDATED

### BALING MACHINE COMPANY

404-406 Third Avenue, Brooklyn 15, N.Y.

MAin 5-0928 (Area Code 212)

Circle 31 on Reader Service Card

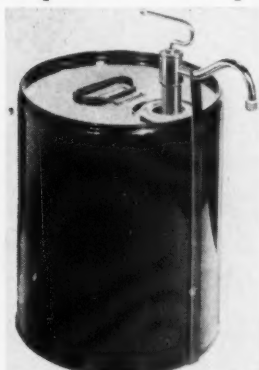
MATERIAL HANDLING ENGINEERING

Glide system sits flush between standard rack shelf beams. Company terms system simple, economical, and fool-proof.

*Frazier Industrial Co.*  
Circle 452 on Reader Service Card

### Don't Waste Liquids

Model M45 pump easily fills small containers from 5 or 6-gallon pails without spill or waste. Self-priming,



exactly 4 oz. per stroke. Quickly installed, adapts to all pail openings. Model M885 fits 15, 30, 55-gallon drums, delivers 8 oz. per stroke. Eliminates drum racking, saves floor space.

*Multi-Meter Corporation*

Circle 453 on Reader Service Card

Circle 146 on Reader Service Card

## NOW YOU CAN LIFT and DUMP ANY CONTAINER!

Dumping standard drums, barrels, boxes and bags is a cinch!

MORE IMPORTANT, no matter what size, shape or type container you use to process free-flowing material — even special in-plant containers — ESSEX can supply the necessary unit for dumping or work-positioning.

ESSEX Dumpers are flexible in design. They can be engineered to suit your individual requirements. For the safe, reliable, economical way to lift and dump (or position) material in any container . . . CALL UPON ESSEX FOR THE ANSWER. Dept. MM

SEND FOR NEW 8 PAGE  
INFORMATIVE CATALOG #59

**ESSEX**  
**CONVEYORS, INC.**

101 Colden Street, Newark 3, New Jersey  
In Canada: Griswold Engineering, Ltd.,  
Montreal and Toronto



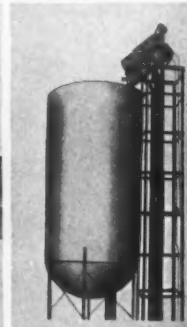
**HYDRO-DUMPER**  
Dumps up to 4 feet  
(higher if platform  
mounted). Load capacity  
in excess of 6000 pounds.



**JUNIOR DUMPER**  
Dumps up to 8 feet  
(higher if stationary  
unit). Load capacity 700  
pounds.



**SENIOR DUMPER**  
Dumps up to 20 feet.  
Load capacity in excess  
of 4000 pounds.



**VERTICAL DUMPER**  
Dumps to any practical  
height. Load capacity in  
excess of 4000 pounds.



ROWE — Adjust-A-Dock



ROWE — Adjust-A-Truck



ROWE Double leaf crossover bridge

### Select the Best... from ROWE's complete line of

- Dock and truck leveling devices
- Crossover bridges

Over 80 standard electro-hydraulic and air-oil powered dock level devices with 10,000 or 20,000 lbs. capacities and 6 mechanical, truck actuated units with 20,000 lbs. capacity are now available.

Electro-hydraulic truck levelers installed where space is limited, available in 40,000 lb. capacity. Crossover bascule type bridge electro-hydraulic operated in either double or single leaf units. Capacities to customers specifications.

**ROWE METHODS, inc.**

WRITE FOR  
DETAILED  
LITERATURE

2534-C Detroit Avenue

Cleveland 13, Ohio

Circle 114 on Reader Service Card

## END THIS COSTLY MAN-KILLING PRACTICE!

— save lives, limbs and money  
with the



## NOLAN<sup>MODEL H</sup> ONE MAN CAR DOOR OPENER



Opens any freight car door in 20 seconds or less! ONLY \$45 f.o.b. Bowerston.

Write for complete new catalog

The Nolan Co., 110 Pennsylvania St.,  
Bowerston, Ohio

Circle 97 on Reader Service Card

# NEWEST EQUIPMENT TO HELP YOU SAVE ON WAREHOUSING, STORAGE, SHIPPING

selected equipment to help you make full  
use of cube, handle orders faster, ship better

## New Narrow-Aisle Truck

Outrigger stand-up lift truck operates in 6-ft. aisles. Models in 1½-ton, and 2-ton capacities, with lift

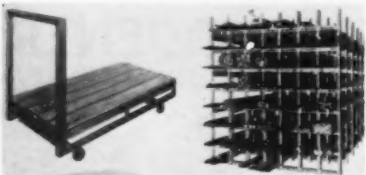


height and straddle spread to suit user's specs. Features are: single lever control, which governs 3 speeds forward and reverse, raising and lowering forks, and horn; driver can control travel and lift simultaneously; electric interlocks prevent starting or reversing in any but first speed, and cut off power when brake is applied; knee action frame keeps all wheels in contact with floor to increase stability.

*Automatic Transportation Co.*  
Circle 454 on Reader Service Card

## Make Racks, Carts, Benches from Kits

You can assemble storage racks, work benches, carts using kits of al-



ready cut slotted angles. Kits include all assembly hardware. Offered as

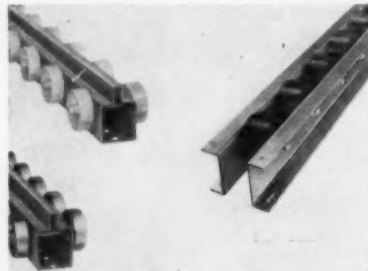
ready-to-assemble kits are: 120 storage units, 82 storage racks, 17 work benches, 13 tables plus foreman's desk, 27 carts.

*Acme Steel Co.*

Circle 455 on Reader Service Card

## Wheeled Rails for Live Storage

You can build your live storage racks, pallet conveyors, work table feeds, using standard wheeled rails. There are two types. One is a rectangular tube with wheels mounted on both sides or only one side. It comes with 1½ in. or 2 in. steel wheels, or 2 in. plastic wheels. The tubular cross-section resists twisting, and makes an integral row divider or conveyor edge guide. The second type is for handling heavy pallet loads. The wheels are mounted between strong steel channels; with 3-in. wheel spacing, this rail will handle 20 x 20 in. pallets weighing 2,000 lb.



Rails are punched at 1-in. centers to allow any wheel spacing from 3 in. up. Maker also offers all the framing members and hardware accessories you need to build your own installations.

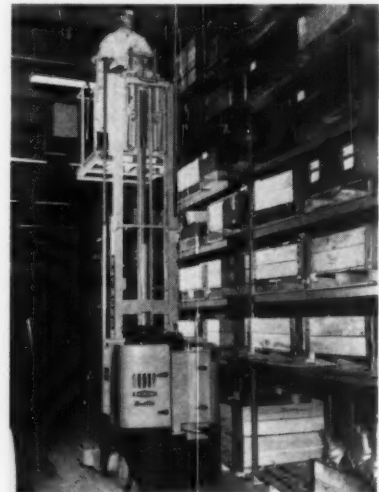
*M-H Standard Corp.*

Circle 456 on Reader Service Card

## Platform Controls Have Safety Features

Driver can start, steer, and stop this electric lift truck, and raise or lower its platform, while he rides on the elevated platform. Four features insure safety: Speed of the truck is limited when the driver operates it

from the platform. The elevated height from which the platform controls can be used to drive the truck



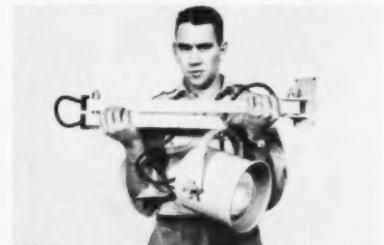
is limited. Full power steering gives the operator accurate directional control when he uses the platform console.

*Raymond Corp.*

Circle 457 on Reader Service Card

## Light Where You Need It

A heavy duty dock light mounts on swing arms, gets light right where needed without extension drop cords.



Places light source 10 to 15 ft. closer to truck and trailer doors. Avoids blinding of workers. Sealed beam bulb recessed for extra protection. Mounts on beams, doors, wood or concrete walls. Takes standard bulbs, 75 to 300 watts.

*Phoenix Products Co.*

Circle 458 on Reader Service Card

MATERIAL HANDLING ENGINEERING



# S.R.T.\*

licks the major causes of tire failure!



## NEW STEEL ARMOR DISCOURAGES CUTS, BRUISES, PUNCTURES—U.S. ROYAL GRIP-MATIC S.R.T.

The SRT\*—Steel-Reinforced Tread and Sidewall—in U.S. Royal Grip-Matic Tires provides the toughest industrial pneumatic ever!

As you can see, a thick layer of rubber containing thousands of short steel filaments forms a virtually impenetrable mat that guards tread and sidewall against cuts, ruptures and penetrations. You enjoy less tire repair, less vehicle downtime, increased tire life. And you get better traction, too, for the U.S. Royal Grip-Matic gives you sure grip on slick ramps and yard areas!

Don't forget to specify "U.S. ROYAL" on your new equipment.

# U.S. ROYAL TIRES



**United States Rubber**

Rockefeller Center, New York 20, N.Y.

Circle 130 on Reader Service Card



Mr. W. J. Shalley  
Industrial Tire Dept., U.S. Rubber  
Rockefeller Center, New York 20, N. Y.  
Please rush me your complete industrial tire manual.  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City & State \_\_\_\_\_



# ASSOCIATIONS



**NIPHLE ANNUAL ACHIEVEMENT** awards: E. C. (Ed) Campbell (left) who received the 1961 National Institute of Packaging, Handling and Logistic Engineers annual achievement award for material handling looks on as Thomas Babbington (center) presents the Institute's Packaging achievement award to L. C. (Les) Heller. Campbell is head of the Navy Bureau of Supplies and Accounts Warehouse Operations Branch. Heller is chief civilian of the Office of Naval Material, Packaging Branch. The NIPHLE awards go to persons who have made continued outstanding contributions to government packaging, handling, or logistics.

## NIPHLE

New officers of the National Institute of Packaging, Handling and Logistic Engineers are: H. M. Lapidus, Navy Bureau of Supplies and Accounts, president; R. A. Norris, Armed Forces Supply Support Center, vice president, packaging; Jackson B. Weaver, Packaging and Converting Co., Inc., vice president, handling; Charles A. Lewis, Business and Defense Services, Administration, U.S. Department of Commerce, vice president, logistics; Paul M. Zerr, Reed Research, Inc., recording secretary; Howard R. Hudson, National Wooden Box Association, corresponding secretary; and John P. Martin, Navy Bureau of Supplies and Accounts, treasurer. Leonard E. Fagan, of the Federal Supply Service, continues as editor of the NIPHLE bulletin.

## MHI

Early spring industry meetings of the Material Handling Institute, Inc.; the Industrial Truck Association; and the Monorail Manufacturers Association; will be held Feb. 6 through 8, 1962, at the Hilton

Inn, Atlanta, Ga.

Thirteen past presidents of MHI were honored at the Joint Industry Annual-Business-Social meetings held Oct. 30 through Nov. 1. Given specific recognition for their contributions to the industry and MHI were: L. J. Kline, the late S. K. Towson, Sr., Samuel W. Gibb, James H. W. Conklin, John G. Bucuss, L. West Shea, Howard M. Palmer, C. B. Elledge, R. H. Davies, G. G. Raymond, Jr., R. L. Fairbank, Eugene Caldwell, and C. L. Fell.

## NLPGC

The liquefied petroleum gas industry will celebrate its 50th anniversary in 1962. Donald G. O'Meara, president of the National LP-Gas Council said the industry will enter its second half century with production well in excess of ten billion gallons a year. This compares with production of less than 4.5 billion gallons as recently as 1952. The Industry's 50th anniversary program will be highlighted throughout 1962 at conventions of the industry's 44 national, regional, and state trade associations. More than 30,000 dealers, together with distributors, proces-

sors, and manufacturers, will participate in national and local level commemorative and sales programs coordinated by the Council. O'Meara says that estimating another doubling of demand for LP-Gas within the next 10 years, the industry has invested six billion dollars in facilities to provide adequate production and distribution by pipeline, tank car, ship, and bulk tank truck.

## FPBA

Shipments of folding cartons during the second quarter of 1961 were almost 7 percent ahead of the first quarter and even with the dollar volume recorded in the second quarter of last year. The Folding Paper Box Association of America reports that although the tonnage of cartons shipped in June this year was only 100 tons under the same period in 1960, dollar volume slipped \$1 million. Industry volume for this year is estimated at \$81.7 million, compared with \$82.7 million in June, 1960. New orders for folding cartons in the second quarter were up 3.8 percent in dollar volume and 4.5 percent in tonnage over the same period last year.

D. A. Forsberg, president, Forsberg Paper Box Co., has been re-elected president of the Folding Paper Box Association of America. New members of the association's executive committee are: W. W. Fitzhugh, Jr., president, New Haven Board & Carton Co.; and E. B. Wall, vice president, Federal Paper Board Co. Inc. Continuing members are: Herbert C. Bernard, Shuttleworth Carton Co.; Charles Ruble, Sr., Standard Paper Box Co.; Leo H. Schoenhofen, Container Corporation of America; and C. B. Stauffacher, Continental Can Co.

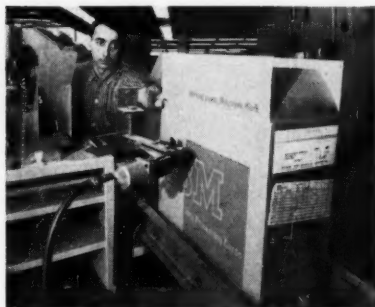
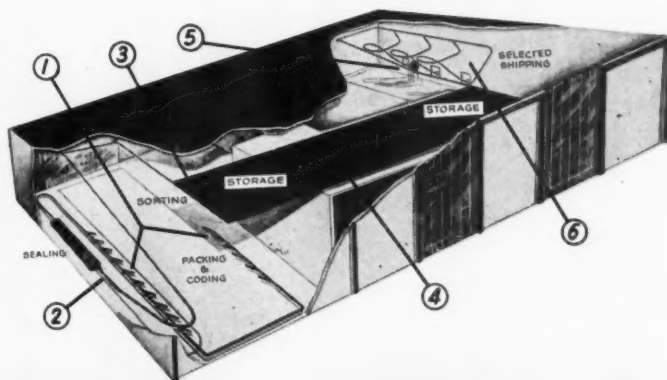
## SPHE

The Eastern Chapter of the Society of Packaging and Handling Engineers held "Military Night" Sept. 18th as the group heard Seymour Stambler, head of the Packaging and Research Branch of Supply Engineering, Naval Supply Research and Development, Bayonne, N. J. He discussed current concepts in military packaging.

**REPORT ON**  
**CUTTING**  
**COSTS WITH**  
**CONVEYORS**

**How a Standard Conveyor custom-engineered system at IBM provides • simple electronic sorting • space-saving gravity storage • push-button order filling • one-man operation**

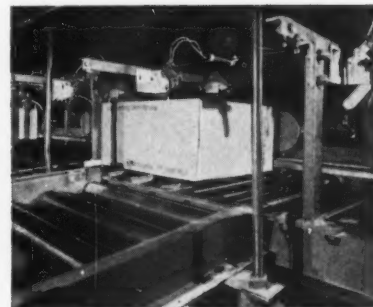
IBM's punched card plant at Concord, Mass. turns out hundreds of millions of cards per year for its New England customers. The mere physical handling of this massive volume is a problem in itself—and it becomes even trickier because each order is unique, usable only by one customer. Complicating the problem, each carton of 10,000 cards is outwardly identical, except for the shipping label. Here's how Standard Conveyor's *System Specialists* helped IBM work out a simple mechanized system to solve the intricate sorting and storing problem.



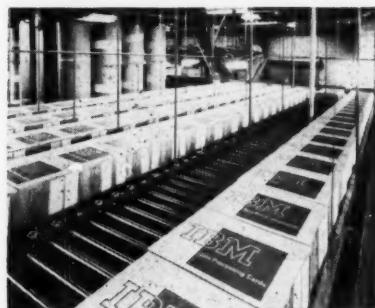
**1** At card manufacturing machine station, each full carton is automatically coded by a brass staple as it enters conveyor system. Staple position determines to which storage line carton will go. Staple does not penetrate inside of carton.



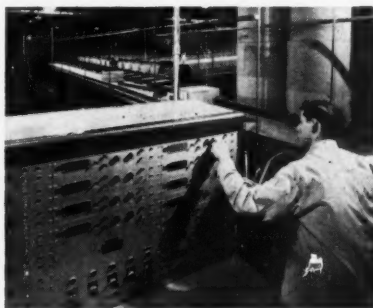
**2** Boxes from various stations, representing different customer orders, are intermixed on main conveyor line. After being closed and sealed they are turned on their sides before being routed to sorting and storage conveyors.



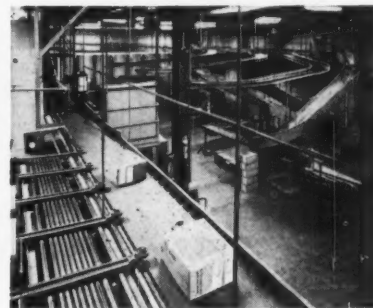
**3** On sorting conveyor, position of coding staple, now on top, is sensed by electrical brass-fingered reader. If reader contacts staple, a retractable stop pops up and air actuated ram pushes carton into correct storage line.



**4** Six of the 16 ceiling-hung storage lines as seen from the sorting area. Each customer order is now in one line and may consist of any number of cartons.



**5** Shipping clerk at order filling console knows from his shipping card where orders are stored, how many cartons each order contains, and which carrier gets which order. When truck arrives, clerk selects order desired—rest is automatic.



**6** Cartons enter shipping room from storage lines at left. Shipping clerk also operates electrical diverters from console to route each order into one of four chutes. Thus, one man controls the entire sorting and storing system.



**Standard**  
**Conveyor**  
**COMPANY**

302-L Second St., North St. Paul 9, Minn.

**Specialists in the System Concept of Conveying.** Fully staffed with professional personnel who are ready to help you envisage, engineer and execute a master plan to cut material handling costs. Sales engineering offices in more than 50 cities... consult your telephone book Yellow Pages under "Conveyors".

Circle 115 on Reader Service Card





## Towmotor Corp. Announces Additional Management Changes

Towmotor Corporation announces three major promotions, additional steps in its program of management expansion.



Wessman



Roth



Utley

Daniel M. Wessman, formerly assistant sales manager, moves into the position of assistant to the executive vice president. Alfred H. Roth, who has been in charge of advertising and sales promotion, is now manager of marketing and advertising. W. L. Utley becomes assistant to the president, in addition to his post as assistant secretary.

Wessman joined the company in 1933, worked in product development and production, and later organized and merchandized Townmotor's Service, Parts, and Repair Departments.

Roth has been with the firm since 1946. He formerly was with The B.F. Goodrich Co. and Talon, Inc. in various sales and advertising positions.

Utley joined Towmotor in 1941 after several years with Reliance Electric and Engineering Co. He is a national director and past vice president of S.P.H.E.

## Brooks & Perkins Appoints Controller

Arthur X. Schmaltz has been appointed controller of Brooks & Perkins, Inc., Detroit manufacturer of aerospace assemblies and light metals products for industry. He succeeds the late L. A. Curnoe.



Schmaltz

Schmaltz, who attended Walsh Institute of Accounting and the University of Michigan, was treasurer of the Parsons Corp., Detroit, for 18 years.

## Fastener Corp.'s New Plant

Fastener Corp.'s new manufacturing plant is nearing completion at the company's 37 acre site, Franklin Park, Ill.

John A. Torstenson, president of Fastener, says the plant will almost triple manufacturing facilities of Duo-Fast staplers, tackers, nailers, and staples. It will also house Engineering and Personnel Departments.

## Allis-Chalmers Changes Lift Truck Colors

Beginning Sept. 1, all lift trucks coming off the production line at the Harvey, Ill. Works were painted Allis-Chalmers yellow. This replaces the widely known Allis-Chalmers orange, which has identified the trucks in the past. The company recently adopted yellow for its construction, utility, and other industrial equipment because of its international identification with safety.

## Mead Buys Three Container Plants

The Mead Corp. has purchased the Waterloo Container Corp. and Waterloo Corrugated Box Co. of Waterloo, Iowa, and the Fort Dodge Container Corp., Fort Dodge, Iowa.

## General Sales Manager Post

J. Thomas Schank has been named general sales manager of the Paslode Co., Chicago. Paslode is a division of Signode Steel Strapping Co. Schank joined Signode in 1954.

## Clark Equipment Appoints Industrial Relations Manager

George Plaut has been appointed manager, industrial relations, of Clark Equipment Co. For the last two years, he was with Daystrom, Inc., most recently as director of industrial relations.

## Bucyrus-Erie Appointment

Donald W. Waack has been appointed manager of sales promotion at Bucyrus-Erie Co., South Milwaukee. He had been assistant sales development manager for Schield Bantam Co.

## Penco Division Top Posts

Carl B. Smith and Frank Spaniel have been appointed general man-

ager and general superintendent respectively of the Oaks, Pa. Steel Storage Equipment Co. Smith was formerly acting general manager of Penco Division. He joined the parent firm, Alan Wood Steel Co. in 1952. Spaniel joined the company in July, 1957. His most recent position was manager of production, Penco Division.

## Hughes Named General Manager at Globe Pacific Hoist Co.

Paul E. Hughes has been named general manager of Globe Pacific Hoist Co., Long Beach, Calif. This is the West Coast Division of Globe Hoist Co.

Hughes succeeds John R. Queen, executive head since 1955. He has joined the Shields, Harper and Co. as president.



**SIGNING A BASIC AGREEMENT** between Towmotor Corp. and Lansing Bagnall Ltd., England, is Lester M. Sears, Towmotor chairman. Looking on is C. E. Smith, Towmotor president. Lansing Bagnall will make Towmotor products and distribute them in England, Continental Europe, and other foreign countries. Towmotor will make and distribute in this country Lansing Bagnall electrically-powered fork lift and industrial trucks.

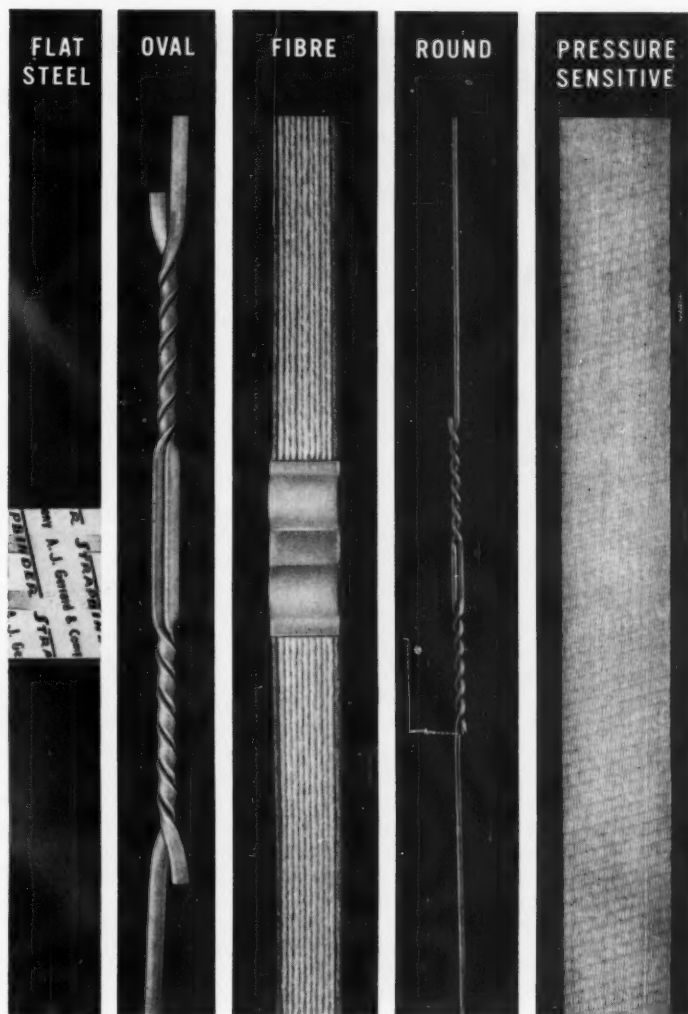
## Fuller Appoints Cole to Advertising Post

Henry J. Cole has been appointed assistant advertising manager of the Fuller Co. Cole joined Fuller after five years as advertising manager of Atlas Mineral Products Co., Mertztown, Pa.

The Elwell-Parker Electric Co. has a new distributor in the Dallas area: Mayse Industrial Equipment Co. Mayse is headed by Floyd M. Mayse, formerly a district sales manager for the Lamson Mobilift Corp.

Continued on page 132

# THE RIGHT CHOICE CAN SAVE YOU UP TO 60% ON STRAPPING COSTS!



There's a quick way to check your strapping costs . . . call an A. J. Gerrard and Company representative.

As a strapping science specialist, an A. J. Gerrard representative has factual data on costs for all *types* of strapping. He will make an impartial analysis of your practices because he can offer flat, oval, round or pressure sensitive strapping . . .

in both metal and fibre types.

Savings of up to 60% on some strapping costs are not unusual. An A. J. Gerrard survey . . . at no obligation . . . could lead to a substantial reduction in your company's strapping costs, too.

For your strapping survey, just fill in the coupon below and mail, today.

**A.J. GERRARD**  
& COMPANY

402 EAST TOUHY AVE. • DES PLAINES, ILL.

A. J. GERRARD AND COMPANY  
402 E. TOUHY AVENUE  
DES PLAINES, ILLINOIS

Gentlemen:

At no cost or obligation to us, we'd like an A. J. Gerrard specialist to survey our strapping costs.

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ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

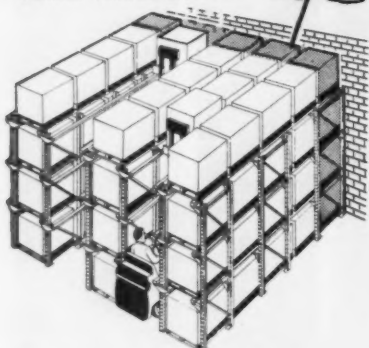
☐ Have your specialist call ☐ Write for appointment

Circle 55 on Reader Service Card

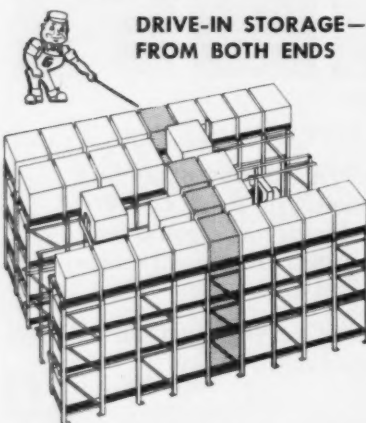
## DRIVE-IN Ridg-U-rak

From its  
SUPER-RIGID  
BASIC SECTION

DRIVE-IN STORAGE—  
FROM WALL OUT



This is for solid pallet or skidded material. Each bay stores similar material—first pallet in is last pallet out. This "Ridg-U-rak" is self-supporting—a Super Rigid Basic Section next to the wall anchors the system.



DRIVE-IN STORAGE—  
FROM BOTH ENDS

Super Rigid Basic Section in the middle anchors and divides the system to permit a wide variety of pallet or skid material.

For catalog on these 2 methods of Drive-In "Ridg-U-raks" and Drive-Thru Systems, ask for Cat. 111H. For Single Pallet deep "Ridg-U-raks", ask for Cat. 107B-1J

**BERNARD GLOEKLER  
NORTH EAST CO.**  
NORTH EAST, PA.

The Pioneers in  
"hook and slot" rack design

Circle 53 on Reader Service Card

## INDUSTRY NEWS

### Bostitch Purchases Calwire Products, Inc.

The purchase of Calwire Products, Inc., and Calnail, Inc., its selling organization, is announced by Bostitch, Inc.

Manufacture of Calwire products will continue in the Visalia, Calif. plant. Sales and service activities will be directed from Rhode Island through the Bostitch national sales organization and through distributors in over 50 foreign countries.

### Labelon Tape Co. Moves

Labelon Tape Co., now a division of Labelon Corp. has transferred manufacturing facilities and headquarters to 10 Chapin street, Canandaigua, N.Y. This is 25 miles southeast of Rochester, former location.

### CompuDyne Buys Two Companies

Acquisition of TransWeigh Co., King of Prussia, Pa., and Automatic Measurement Corp., Phoenixville, Pa. is announced by CompuDyne Corp., Hatboro, Pa. Both companies will function with Weighing and Controls, Inc., a CompuDyne subsidiary.

### Semco, Sweet & Mayers Purchase L.A. Building

Nationally known consulting industrial engineers Semco, Sweet & Mayers have their own office building in Los Angeles as of June 1. Location is at 2835 Gilroy street.

### Balemaster Acquires Balewell Manufacturing Rights

East Chicago Machine Tool Corp. has acquired the name "Balewell" and the manufacturing rights to the products of the Baler Corp., Lancaster, N.Y. The Balemaster Division plant of the East Chicago firm takes over the added line.

### New Posts Filled At Clark Equipment Co.

The Industrial Truck Division of Clark Equipment Co. has appointed Warren Henderson as Great Lakes district manager. Edward Sperr has been named sales manager of Clark's Chicago sales and service facility. Both will headquarter in Chicago.

### Caterpillar Forms Switzerland Branch

Caterpillar Tractor Co. has formed a Switzerland subsidiary company called Caterpillar Overseas, S.A. Headquarters are in Geneva.

V. V. Grant is president of the new company. Other officers are: R. H. Deffenbaugh, secretary-treasurer; J. R. Hawk, sales manager; and G. J. Preston, Parts and Service Manager.

### General Precision Division Appoints Material Manager

W. J. Flanagan has been appointed material manager of the Glendale,



Flanagan

California branch of Librascope Division, General Precision, Inc.

Flanagan will be responsible for branch purchasing, material control, inventory, and material receiving activities. Before joining Librascope, Flanagan was general manager of Pacific Automation Products.

The Librascope Branch produces computers and associated fire control equipment for the Navy's ASROC and Polaris missiles, and a new undersea antisubmarine weapon.

### Rapistan Names Pipp VP—Engineered Sales

Walter B. Pipp has been named a vice president of The Rapids-Standard Co., Inc., Grand Rapids, Mich. He has been with the company for over 12 years, and was manager of engineered sales for the last 6 years. He has served as assistant to the president, assistant



Pipp

to the vice president of manufacturing and engineering, and plant manager of the Plymouth Road Plant.

His promotion coincides with the new and expanded facilities for systems engineering at the firm's plant in Grand Rapids.

### Two Engineers Join Arthur D. Little, Inc.

Dr. William S. Tandler, system automation engineer, and David N. Smith, automatic controls engineer, have joined Arthur D. Little, Inc., industrial research company of Cambridge, Mass.

Dr. Tandler has worked 25 years in the technical and economic aspects of systems automation in the US and Europe. He was president of the Warner and Swasey Research Corp., with which he has previously merged his own firm.

Mr. Smith has worked in machine

Continued on next page

MATERIAL HANDLING ENGINEERING



control and instrumentation at Jones & Lamson Machinery Co., Sperry Rand, and at American Machine & Foundry.

#### Establish M H Firm

Frank P. Alcock, former partner of Ajay Co., Montebello, Calif., has sold his interest in that material handling firm to establish the F. P. Alcock Co., Downey, Calif.

The company will handle a varied line of material handling equipment, acting as factory representatives for southern California and Arizona. The firm offers sales, and installation, as well as consultation.

#### Union Asbestos Acquires Arrow Products, Inc.

Union Asbestos & Rubber Co., Chicago, has acquired all of the stock of Arrow Products, Inc., manufacturers of belt, wheel, and roller type conveyors, and the plant occupied by Arrow at Grand Haven, Mich.

Edwin E. Hokin, president of Union Asbestos, says the Arrow products will complement Union Asbestos' line of Sturdi-Bilt storage racks, and "make an important addition to the company's Material Handling Division."

#### Fallon to Address A M A Warehouse Seminar

Charles M. Fallon, General Manager of MHE, will address the American Management Association seminar dealing with "Order Picking, Packing, and Warehousing," to be held at the Ambassador Hotel, Los Angeles, November 13 to 14. Fallon's subject will be "Comparative Analysis of Order Picking Systems." The seminar will cover systems, cost control, facilities, automatic data processing, packing methods, and service standards in modern warehouses. Other speakers will include F. H. Bergholdt, California Packing Corp.; Burley T. Cram, Sylvania Electric Products, Inc.; Neal Wells, Jerseymaid Products, Inc.; John W. Crowe, S. & W. Fine Foods, Inc.; Andrew Briggs, The May Co.; Allen W. Merriam, Raytheon Co.

#### Allis-Chalmers Appoints Manager of Engine Engineering

Douglas W. Erskine has been appointed manager of engine engineering at the Harvey, Ill. works of Allis-Chalmers.

#### Austin-Western Names District Service Manager

George N. Geers will serve as district service manager for Austin-Western, Construction Equipment Division, Baldwin-Lima-Hamilton Corp. His territory is the New England states.

#### Burger New President of LeTourneau-Westinghouse

Lewis J. Burger has been named president of LeTourneau-Westinghouse Co., succeeding Merle R. Yontz.



Burger

Burger formerly was with General Electric in various management capacities. He was general manager of the Gear Motor and Transmission Components Department, Gas Turbine Department, Switchgear and Control Division, and Laboratory Operations of the Component Products Division.

Continued on next page

# JAKES

America's Finest  
Industrial Trucks and Trailers

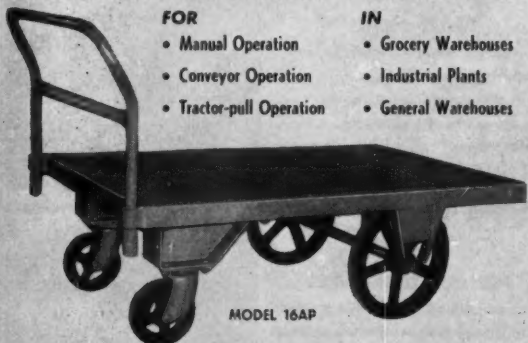
MODERN ALL PURPOSE HEAVY DUTY TRUCKS

FOR

- Manual Operation
- Conveyor Operation
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IN

- Grocery Warehouses
- Industrial Plants
- General Warehouses



MODEL 16AP

WRITE FOR LITERATURE

JAKES FOUNDRY COMPANY

Established 1891

2800 Charlotte Avenue

Nashville 9, Tennessee

Circle 71 on Reader Service Card

November 1961

On production line ...

or one  
at a time ...



**FISCHBEIN**  
**BAG CLOSING**  
**EQUIPMENT**

saves time and money!

For fast, secure closing of bags in any production application, you can depend on efficient, low cost FISCHBEIN BAG CLOSING EQUIPMENT... a complete line ranging from completely portable to fully automatic production line machines. Fischbein equipment performs reliably on all kinds of textile or paper bags.

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EQUIPMENT



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rubs together or slides against anything in a Maitrol® conveyor control system. Magnetic encoding is read across a wide air gap with no contact necessary. Other features:

- Works with all types of conveyors
- No wires between stations
- Routing or processing codes stay with material even through inter-conveyor transfers
- Unlimited encoding combinations
- Low cost, high reliability
- Pays for itself fast
- Simple pushbutton or dial control

Write today for Maitrol brochure. It gives full details.

**Maico electronics inc.**  
A SUBSIDIARY OF W. A. SHEAFFER PEN CO.  
21 N. Third St. • Minneapolis 1, Minn.

## INDUSTRY NEWS

### Towmotor Appoints New Assistant Sales Manager

Roland D. Jones has been appointed assistant sales manager for Towmotor Corp. His main responsibility will be merchandising electric-powered industrial trucks.



Jones

Jones has been a director of The Material Handling Institute. His entire career has been in material handling. He is a graduate of Dartmouth College, and he received his Master's Degree from the University of Chicago where he was enrolled in the Executive Program.

### Clark Opens Factory Branch in Cleveland

Clark Equipment Co.'s Industrial Truck Division has opened a new factory branch to sell and service its line of material handling equipment in the Cleveland area.

The new facility is at 9601 Granger Road, Garfield Heights, Ohio. J.

D. Goodson, branch manager, says the new branch will stock \$500,000 worth of equipment and parts. About 80 percent of the 23,400 sq. ft. building will be devoted to service facilities and parts warehousing. Maintenance equipment includes a fleet of 13 field service vehicles.

The branch also provides rental equipment, used trucks, and a variety of equipment procurement plans.

### Hanchett Magna-Lock Appoints Sales Manager

Bert C. Thorstenson has been appointed sales manager of Hanchett Magna-Lock Corp., Big Rapids, Mich. The firm designs and makes magnet chucks, devices and lift magnets.



Thorstenson

Thorstenson was chief engineer of the Magnetic Products Division of Sundstrand Corp. for 10 years prior to his present position.

He has also held responsible engineering positions with Woodward Governor Co., George D. Roper Corp., Fairbanks Morse & Co.'s Locomotive Division, Ipsen Industries, and Burd Piston Ring Co.



## engine exhaust... "made safe enough for a baby" CATALYTIC PURIFIERS

Practical, fully tested and approved, will make your industrial engine exhaust safer. Dangerous Cancer Suspect Hydrocarbons and Carbon Monoxide reduced to safe levels will increase employee productivity; increase profits. Oxy-Catalyst Exhaust Purifiers will convert gasoline, LP gas or diesel exhaust into harmless vapor for safer indoor operation of lift trucks, sweepers, engine-generators, construction and mining equipment.

Also inquire about our Fume and Odor Elimination Equipment for industrial processes.



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POLLUTION  
CONTROL

**OXY-CATALYST, INC.**

Berwyn, Pa.

Catalyst for cleaner, safer *Air*

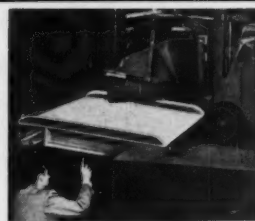
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**magcoa**

THE OLDEST TRADENAME  
IN LIGHT METALS  
MATERIALS HANDLING PRODUCTS

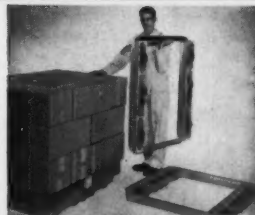
### MAGNESIUM DOCKBOARDS

For safe, skid-proof truck and rail loading! Rugged but lightweight — one man can position. Engineered to fit your dock and equipment. Most modern economical dockboards available.



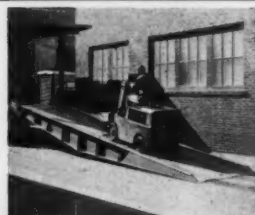
### PALLET DOLLIES

Free your lift trucks — and loading bottle-necks! Magnesium — light and durable — at no premium. Magcoa rollers give total maneuverability. 18 standard sizes — capacities to 4000 lbs.



### PORTABLE YARD RAMP

Solve your ground level loading problems! 32 std. mobile models — capacities to 100,000 lbs. Engineered to accommodate all equipment, load and height requirements.



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155 S. E. 10th Ave. TUseda 7-8117 Hialeah, Florida

Circle 86 on Reader Service Card  
MATERIAL HANDLING ENGINEERING

### General Electric Appointment

Benjamin F. Bennett has been appointed manager of general industry engineering at the General Electric Industry Control Department, Salem, Va. He has been with GE since 1941. He formerly was senior application engineer for the material handling industry with GE's Industrial Sales Operation, Schenectady, N.Y.

### Ohio Electric Names Sales Manager—Magnetics

Edward H. Richard has been named sales manager—magnetics for The Ohio Electric Mfg. Co., subsidiary of Howell Electric Motors Co.



Richard

Richard has been with the company two years. Before that, he worked on a survey on mechanization in the scrap industry, in conjunction with the Institute of Scrap Iron and Steel.

### W. P. White Named Appleton Executive VP

W. P. White, Jr., has been appointed executive vice president of Appleton Electric Co. He formerly

was associated with the Continental Can Co. and the White Cap Co.

### Major Appointments at H. J. Heinz Company

Two appointments in the Distribution Division of the H. J. Heinz Co. are announced by Ross E. Jones, vice president, distribution.

John B. Carnahan has been named assistant to the vice president, dis-



Carnahan



Jackson

tribution; and Grant E. Jackson has been named manager, transportation and warehousing.

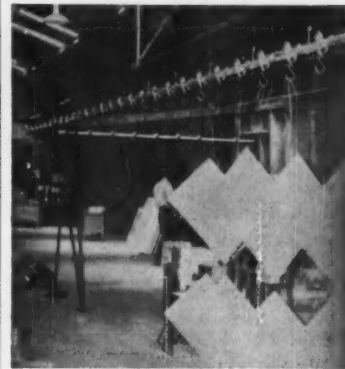
Carnahan joined Heinz as a material handling staff member in 1946. He has just returned to Pittsburgh after completing a year of study at the Massachusetts Institute of Technology. He received a master of science degree in industrial management.

Jackson joined Heinz in 1948 as

Continued on next page

## ECONO

### Overhead Trolley Conveyors



For  
Retailers - Wholesalers - Manufacturers

To Aid The Above In  
**STORAGE - PROCESSING  
TRANSPORTATION  
ASSEMBLY OPERATIONS**

Investigate today this versatile, efficient  
low cost conveyor.

Write for Literature and Prices

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Celina, O.**



Make light  
of any load with

## ELECTROLIFT WORM-DRIVE HOISTS

Safe . . . sure . . . swift . . . ElectroLift worm-drive hoists have a place in every manufacturing plant, large or small. Ranging from 1/4 to 10 tons in capacity, these units feature:

- Safe, sure braking and quiet, durable worm-gear drive.
- Totally enclosed gearing with ac or dc motor drive.
- Compact design for operation in close headroom.
- Quality construction and material for long, trouble-free performance.

For details on speeds, capacities, models and operation, consult the classified directory for the ElectroLift representative nearest you.

7990



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Circle 41 on Reader Service Card

November 1961



## AIR-LEC automatically makes heavy door operation this easy!

A touch of the switch and the heaviest doors open and close smoothly, without a slam. Installation is simple too. Operators are surface mounted above the door. Air lines follow standard accepted practices. Low voltage wiring often can be run without conduit. Sturdy construction meets demands of hard service. Low initial cost and maintenance is negligible. Open YOUR door to savings. Write for details!



Manufacturers of automatic sliding, swinging  
and folding door operators since 1921

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Formerly Schoelkopf Manufacturing Co., Inc.

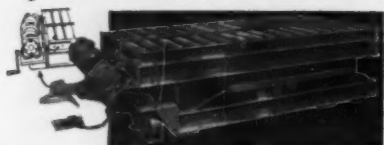
**AIR-LEC Industries, Inc.**

Dept. M • 320 North Third Street • Madison 10, Wis.

Circle 6 on Reader Service Card



## New Dual Purpose Weld-Bilt Hydraulic Lift Table



### Handles Heavy Dies, Sheet Metal Easily, Swiftly!

Equipped with a roller conveyor top and hand winch, this heavy-duty Weld-Bilt Hydraulic Lift Table is a *double-duty* unit. The winch simplifies moving heavy dies onto and off of your presses. Then swing the winch down and use the lift table to feed heavy sheet steel for press operation. The foot pedal control is an electric switch for powered raising or lowering table for press-height feeding. Capacities to 30,000 lbs.

Call on Weld-Bilt engineers for suggestions. Or write for bulletin No. HT 358.



**WEST BEND EQUIPMENT CORP.**  
MATERIALS HANDLING ENGINEERS

335 Water Street • West Bend, Wis.

## INDUSTRY

### NEWS —

a transportation and warehousing trainee. Since Oct. 1960, he served as acting manager of transportation and warehousing.  
must 9D30-Carnahan-9D31-Jackson

### Material Handling Specialists Join M. E. Canfield Company

Sherwood Case, sales engineer,  
and Lynn Griffin, conveyor special-



Case



Griffin

ist, have joined the M. E. Canfield Co., Los Angeles.

Case has been in the material handling field since 1945. He operated his own business in Denver.

Griffin was sales and materials handling coordinator for a southern California plant prior to joining the Canfield organization.

### Distributor News and Company Reps

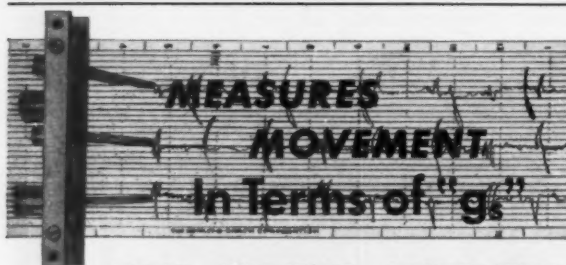
The Elwell-Parker Electric Co. has appointed Penn Industrial Equipment Co., Lancaster, Pa. as its central Pennsylvania representative.

Rapistan of New York, Inc. has appointed William E. Curran Rochester sales representative specializing in Hyster fork lift trucks and unit load handling. He will cover Rochester and the Southern East part of New York State. Curran was formerly with Morrison Company in Cleveland for 16 years.

Hartman Metal Fabricators, Inc. has appointed the M. W. McMillan Co. in Cincinnati as a representative. Territory includes: southwestern Ohio, southeastern Indiana, and northeastern Kentucky. Hartman has also appointed two dockboard distributors. They are the Col-Mer Co. in Columbus, Ohio and the John J. Connell Co. in St. Louis.

Nutting Truck and Caster Co. has named the Rayhaven Equipment Co., Inc., Detroit, its sales representative in the Detroit area.

The Mobilift Materials Handling Division of Motec Industries, Inc.

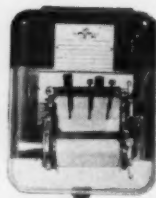


### SHOCK - VIBRATION - ACCELERATION

IMPACT-O-GRAPH has long been used by engineers and scientists engaged in tests that involve the measurement of movement be it shock, vibration or acceleration.

Where such tests involve the determination of reliability, setting up quality control systems, designing packaging or the measurement of environmental factors, IMPACT-O-GRAPH has approached the accuracy of expensive electronic equipment. Yet this three-directional instrument is compact, self-contained and costs a fraction of bulky electronic shock-testing apparatus. It also provides you with a permanent charted record of test results plus time and date factors, if required.

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Model XS

Choice, exclusive territories open for qualified representatives.



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Eliminate in-plant accidents caused by slick floors and spilled inflammables! This TOKHEIM Hand Pump, for use on drums or skid-tanks, has 8' hose—or spout outlet—prevents dangerous, wasteful slopping of oils and many other liquids. Speeds production. Pumps 20 gallons per 100 strokes. Ask your dealer, your Tokheim representative or write for list of liquids.



General Products Division  
**TOKHEIM CORPORATION**  
1668 Wabash Avenue Fort Wayne 1, Ind.

Subsidiaries: GenPro Inc., Shelbyville, Indiana; Tokheim of Canada, Ltd., Toronto, Ontario; Tokheim International, A. G., Lucerne, Switzerland

Circle 126 on Reader Service Card  
MATERIAL HANDLING ENGINEERING

has granted a franchise for forklift trucks and towing tractors to the **Minnesota Bearing Co.** of Minneapolis.

**Irving T. Bartlett, Jr.**, Rumson, N.J. has been named head of sales in Jersey City, N.J. for **C & D Batteries**.

**Federal Fibre Corp.** has appointed two manufacturer's representatives. **John McKenney**, of **Maxwell-McKenney & Co.**, Philadelphia, and **Clayton Hall**, of Dallas, Texas have been given territories.

**Chainveyor Corp.** has appointed **Albert C. Kruse** as factory manager for their Los Angeles facilities. Chainveyor has also appointed **T. & T. Works, Ltd.**, Billesdon, Leicester, England a manufacturing and engineering outlet.

**Lloyd L. Otto** has been appointed sales manager of **Canadian Clark, Ltd.**, manufacturers of the Michigan line of construction equipment in Canada.

**Motorola Communications and Electronics, Inc.** has made three promotions in its Pacific Northwest sales organizations. **Joseph V. Guido** has been named regional sales manager. Succeeding him as account executive in Washington and Oregon is **D. Edward Williams**. Moving into Williams' former position as Seattle Zone sales manager is **Robert H. Maki**.

**Yale Materials Handling Division, Yale & Towne**, has named **The Simplex Sales Co.**, Hialeah, Florida a franchised representative. In other company changes, **Roy Perlar** has been appointed manager of the company's New York sales and service branch.

**Cleveland Tramrail and Steelweld Machinery Divisions of The Cleveland Crane & Engineering Co.** have appointed **Vernon B. Jensen** district manager.

**Lamson Corp.** has **Roy Anderson**, field engineer, operating out of its Philadelphia office. He serves Maryland, Virginia, and West Virginia. He specializes in conveyor and automatic pallet loader systems for Lamson's Industrial Division.

**Industrial Truck Division, Clark Equipment Co.** has named **Aspen Equipment Co.**, Denver a new dealer. Area includes Colorado, 8 southeastern Wyoming counties, and

11 counties in western Nebraska. In another appointment, Clark named **James L. Frost** manager of its New Orleans sales and service outlet.

**Union Steel Products Co.** and **Banner Metals, Inc.** have jointly appointed the **Stanley E. Morris Co.**, Los Angeles as their southern California representative.

## CLASSIFIED ADVERTISING

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Offers a Complete Selection  
**HYSTER and Other Makes**

Many with Attachments and Devices  
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One **J. L. Ferguson Model 9 Top and Bottom Carton Sealer**. 4-in-line volumetric filler, complete with drives and motors. Excellent condition. Has been used for filling 3 ounce cartons of beans, corn and peas. Write Box 11161, **MATERIAL HANDLING ENGINEERING**, 812 Huron Road, Cleveland 15, Ohio.

### SALES ENGINEER

Chicago area. Nationally advertised engineered and standard conveyors. Do not apply unless experienced in conveyor field. Salary and bonus. Write Box 11261, **MATERIAL HANDLING ENGINEERING**, 812 Huron Rd., Cleveland 15, Ohio

### LINES WANTED

Large and aggressive French metal products manufacturer, well-known in European economic community market. Wishes to further diversify in products for handling and warehousing, such as original handling boxes, cases, trucks, research licenses. Have you anything to offer? Write Box 11361, **MATERIAL HANDLING ENGINEERING**, 812 Huron Rd., Cleveland 15, Ohio.

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BUCKET ELEVATORS  
& BELT CONVEYORS

ARE ENGINEERED TO  
MEET YOUR NEEDS

Universal Bucket Elevators are designed as compact units, that will elevate your materials smoothly and surely. Standard steel, galvanized or stainless elevators can be supplied in complete "packaged" units . . . ready to install and put to work.

THROUGH RESEARCH AND  
MODERN PRODUCTION  
METHODS UNIVERSAL  
OFFERS YOU . . .

ADVANCED DESIGN — More compact, cleaner operating, smoother running.

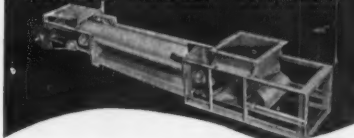
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Universal Bucket Elevators are available for capacities up to 3750 cubic feet per hour and may be obtained for any exact height.

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. . . offer a low cost efficient method of moving all free flowing materials. Low initial cost, less maintenance and trouble-free service are made possible because of the smooth rollerless design. There's a Universal "TROF-BELT" conveyor designed to meet your specific needs in capacities up to 3,750 feet per hour.

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- Lowered Height 3 1/4"
- 90° PIVOT—2-Ways
- Lift 5"—SKF Bearings
- For Single or Double Face Pallets & Skids

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Widths: 20 1/2" or 27"  
Lengths: 36", 42" or 48"  
Wheels: Steel, Rubber or Bakelite (at no extra cost).  
Specify Model No., Fork width and length and type of wheels wanted.

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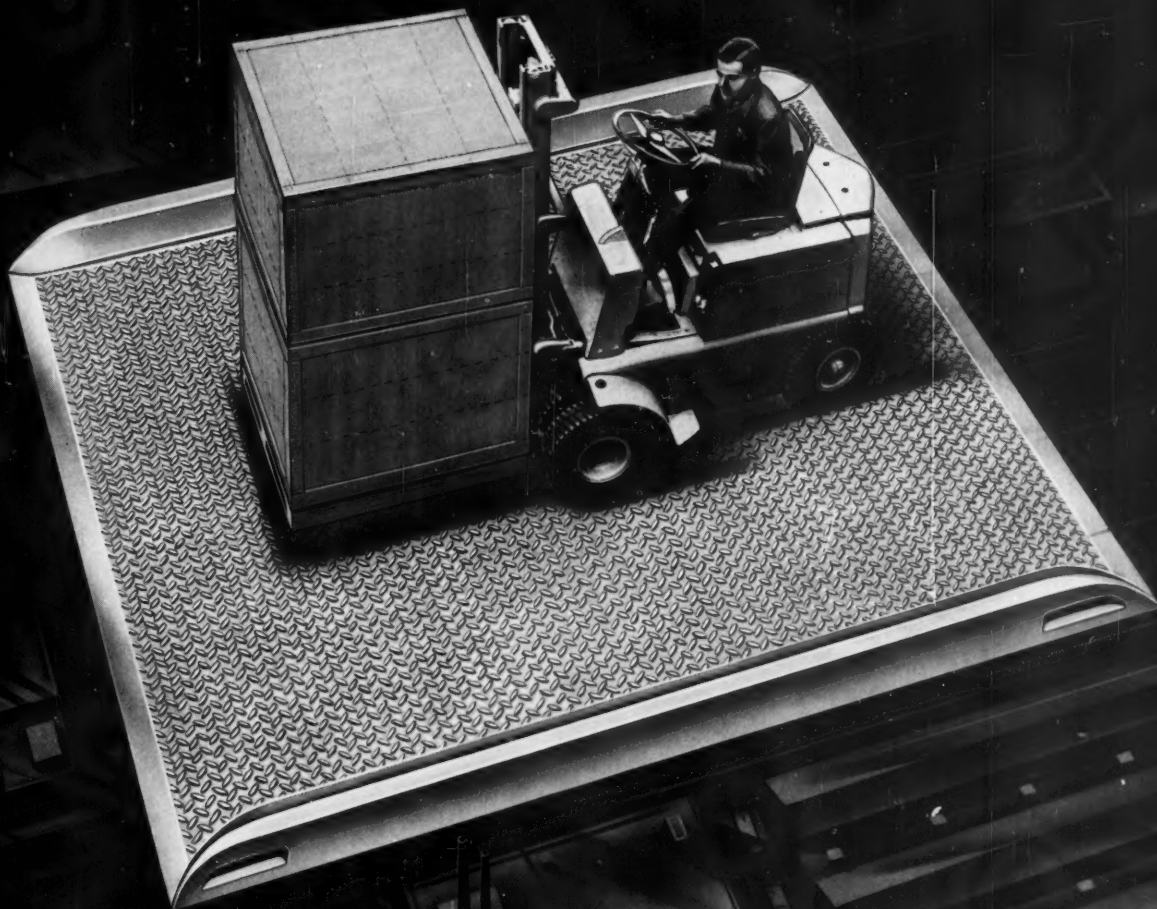
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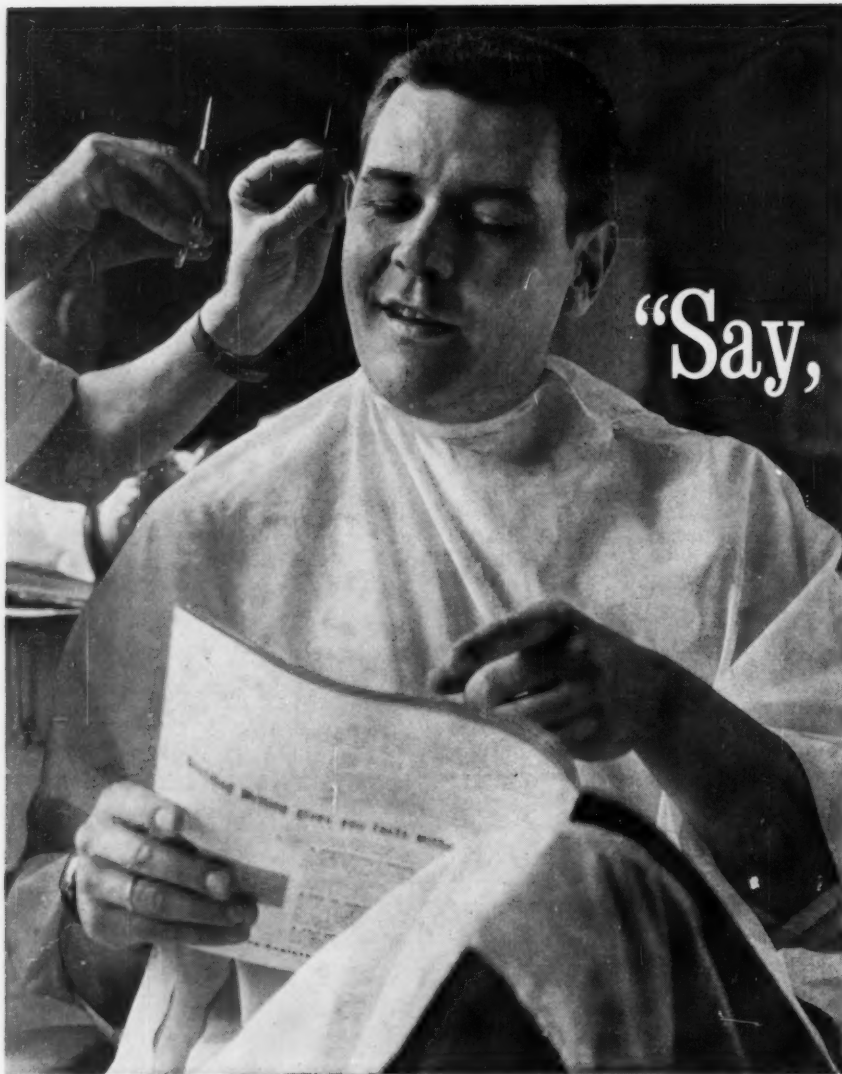


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